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AMERICAN FORESTS

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THE AMERICAN FORESTRY ASSOCIATION

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The American Forestry Association is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute in the highest degree to the welfare of the nation and its people.

In addition to publication of two magazines — AMERICAN FORESTS and CONSERVATION, both designed to keep before the people of the country important conservation questions and issues, the Association carries on educational projects in various fields including forest fire prevention, reforestation, protection of fish and wildlife, upstream flood control, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, development of forestry by private endeavor, the teaching of conservation in the schools of the country, promotion of research in timber growing and use and expansion of markets for forest products.

The Association is independent. It has no connection with any federal or state governments. It is non-political and non-commercial. All its resources and income are devoted to the advancement of conservation. It has been so operated since its founding in 1875. All citizens interested in forestry and conservation are eligible for membership.

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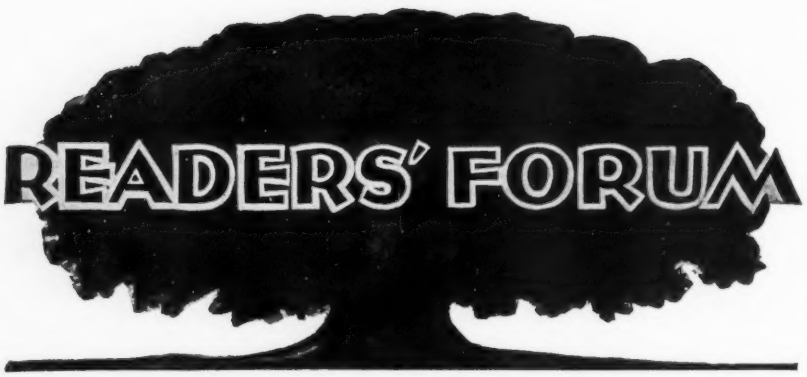

FORGOTTEN HARDWOODS

SIR: Congratulations on the February issue of AMERICAN FORESTS. The feature articles were fine and the accompanying photographs excellent. The ones illustrating the story "The Piney Woods are Coming Back" are most convincing. The view of selective cutting on the Ouachita National Forest might have been taken on one of fifteen or more large private operations in Arkansas, or in some of the other states in the southern pinery where the Forest Service has found many examples of good forest practices.

What appealed to me particularly was your editorial on the southern hardwoods. Not only are the southern hardwoods, as you say, "unheralded and unsung," but in large measures they have been shamefully neglected by pine-minded foresters. For years they have been the red-haired stepchild of forest research. They receive only a pittance for protection from fire and yet, as you point out, the forest survey found close to two-thirds (63 per cent) of the usable wood in the deep South to be composed of hardwoods.

We need to dramatize the possibilities of growing southern hardwoods. Why not follow up your timely editorial with several illustrated stories on the South's forgotten species—the neglected two-thirds—the southern hardwoods?—*G. H. Lentz,* Assistant Regional Forester, U. S. Forest Service, Atlanta, Georgia.

WHY ABORIGINES LEFT CHACO CANYON

SIR: In the article entitled "Trees Do Not Lie," February, 1940, the authors have presented a most accurate and instructive account of the well-known tree calendar, as long as they confined themselves to the trees. Unfortunately, the temptation to derive an explanation of the abandonment of the densely populated region of the Chaco Canyon, Arizona, around 1200 A. D., induced the authors to state certain conclusions not in any way connected with the tree rings. These were that (1) the population had denuded the area of its forests, (2) this changed the balance of nature and (3) induced erosion which cut a precipitous gash through the center of the Canyon, which (4) brought on a man-made desert, with rain as a destructive force—so that this civilization destroyed itself by forest denudation.

Both natural and historical evidence refutes these conclusions. In the first place, the tree rings themselves indicate that a drought of twenty years' duration, which exhausted the water supplies of the inhabitants, was the direct cause of the migration. In the second place, the amount of timber used in the construction of these pueblos was extremely small compared with the stone work, and even then the ceilings of the rooms were made from small withes of manzanita, a quarter inch in diameter. These beams could have been carried long distances on men's shoulders. Use of wood for fuel was very economical. It is inconceivable that with stone axes and such limited demand, any appreciable dent could have been made on the forest, or that such use would have affected the streamflow or erosion. When these people left they intended to return, carefully sealing all openings with masonry. Had their agricultural lands been destroyed at that time they would not have made such plans.

But the final proof lies in the reports of early explorers. Chaco Canyon, when first seen by white man in 1849, was a broad flat valley, with a stream whose bed was about eight feet wide and two feet deep. Later erosion and gullying showed that these strata had lain undisturbed since pre-historic times down to the advent of modern sheep and cattle grazing. These grazing animals were unknown to the pueblo Indians.

By 1924, a wash from 200 to 300 feet wide and thirty feet deep had formed, and by 1933 this was about to engulf the ruins of Pueblo del Arroyo, which had stood since about 1200 A. D. in perfect security, though deserted, on the flat floor of the canyon.

Thus, while the truth of the cause of this erosion was guessed at, based on the observed fact of complete destruction of the agricultural land in the valley, the real cause of emigration was missed, the date of the gullying advanced some 750 years, and the cause of this gullying entirely misconstrued. Overwhelming and constantly increasing scientific evidence now exists in numerous publications of the Department of Agriculture and elsewhere which shows unmistakably the direct influence of over-grazing by sheep and cattle on erosion and gullying in the arid regions of the West, including Chaco Canyon, and the fact that this gullying and destruction are coincident with and did not precede this over-grazing by domestic stock. Let us not confuse the issue either by presupposing that the cutting of a few trees will cause erosion on such a wide scale, or that these industrious, far-sighted aborigines either did, or had the power to bring about the destruction that the white civilization wrought inside of fifty years.

Had rainfall not failed them for cosmic reasons beyond their control, the inhabitants of this communal dwelling of 800 rooms would have been there yet, just as their kin, the Hopis and the Acomas and Zunis still cultivate the soil of New Mexico and Arizona in districts where the waters did not fail.

If one examines the photograph on page 67 of the February issue, a towering cliff appears just back of the pueblo. This cliff is actually a vertical knife edge of rock split off from the remaining plateau and poised as if ready to topple over on the pueblo and smash it flat. But these Indian architects, in a sublime gesture of confidence, defied this fate. They built a stone support below and under this huge mass, to shore it up and prevent its falling on them. Both cliff and wall still stand as a monument to the faith and courage of these ancient peoples—and their belief in the durability of their agricultural civilization.—*H. H. Chapman,* Professor of Forest Management, Yale University, New Haven, Connecticut.

TWO STALWART MEN

SIR: I want to express a personal appreciation for your editorial in the February issue. I counted F. A. Silcox my friend and admired him greatly. And I had grown to the point of accepting his foundational convictions in respect to forest problems.

The last time Mr. Silcox was in Jacksonville was when the subcommittee on forestry held a hearing here, at which I presided throughout the second day. On the morning of the first day, Mr. Silcox had made a magnificent address without the use of any notes. He possessed not only an unusual mentality with which to think things through but, happily, the ability to speak his thoughts and put them into understandable language.

I recall, too, my first meeting with Robert Fechner. We were both enroute to Washington early in August, 1933. I was on my way to attend my first meeting of the Lumber Code Authority and Mr. Fechner had been called to Washington to undertake the CCC camp organization work for which he became famous. He got on at Savannah, his home at the time, I believe, and told me of his aspirations in that direction.

They were indeed two strong, stalwart men, wholly public-spirited. Each has left an indelible impress upon those with whom they worked and each accomplished things of lasting value.

Pictorially and editorially, your February issue is a beautiful job.—*J. B. Wand,* Editor, "The Southern Lumber Journal," Jacksonville, Florida.

ROAD CONTROL

WITHIN the last few years, the U. S. Forest Service has gained a firmer grip on the conservation problem through a rapidly expanding system of trails, firebreaks, and roads. And here is the modern machine that's helping it *keep* that system *under control*.

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OUR DIRECTORS

WILLIAM P. WHARTON

FIRST elected to the Board in 1923, Mr. Wharton has served continuously as a Director for seventeen years. The value of his support is immeasurable as is the tireless energy he has given to attaining the objectives for which The American Forestry Association stands. Nowhere in America, perhaps, can be found a man whose interests and activities cover so wide a field of conservation. He occupies important positions with the leading organizations identified with the conservation of natural resources—notably the National Parks Association, of which he is president; the National Association of Audubon Societies, the Northeastern Bird Banding Association, the Society for the Protection of New Hampshire Forests, and he is also president of The Massachusetts Forest and Park Association.

Born at Beverly, Massachusetts, August 12, 1880, Mr. Wharton was educated at Groton and Harvard. Shortly after leaving Harvard, cruising along the Florida coast, he became intensely interested in the wildlife of the region and this was the genesis of his lifelong interest in conservation. About this time, too, he became Secretary of the American Bison Society, without whose work these great animals of the early American plains might have been exterminated.

His active interest in the National Parks dates back to 1912, when he visited Grand Canyon, Sequoia and Yosemite. Then in 1920 he swung in a wide circle through the Parks, returning home from Klamath Falls via the antelope country, which is now included in the Hart Mountain Wildlife Refuge. When the Everglades National Park project was in course of creation, he visited the area with Frederick L. Olmstead as a special committee of the National Parks Association and made a notable report. In 1937 he made an extensive trail trip through the then proposed Olympic National Park to determine the soundness of the proposal and the most suitable boundaries for such a park.

Mr. Wharton was one of the first citizens to take an aggressive part in the development of the national park standards, and he continued in their defense when modern development and use threatened to undermine the ideals originated by Stephen T. Mather, the first director of the National Park Service. Joining the National Parks Association when it was organized in 1919, he was elected its seventh president in 1935.

Identified prominently with plant pest work in America, Mr. Wharton was one of the organizers of the Committee for the Suppression of Pine Blister Rust in North America, the successor of which is the present American Plant Pest Committee. He was also active in organizing the National Conference on Dutch Elm Disease, of which he is now chairman.

Buying up abandoned farms and woodlots as early as 1905, Mr. Wharton began planting and carrying on various experiments in the use of land. The protection and increase of wildlife, especially birds—he was one of the earliest bird banders in this country—has been very close to his heart and has been one of the chief objectives of the management of his woodland holdings. On his own home farm at Groton, he engaged in orcharding and dairying until 1928, but devoted himself principally to his forest land. He is also the director of the town forest of Groton. His early interest in forestry led him, in 1913, to visit the well-known forests of Europe, including those at Nancy, Frankfort, Darmstadt, Heidelberg, Karlsruhe, Baden-Baden and Forbach, and the Sihlwald at Zurich.

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THIS MORNING at daybreak a veritable explosion of pent-up happiness sounded outside my south window. It was the song of a bird—the first music of the air in many a long, cold week. Could it be that spring already is beginning to stir in the good earth? Time then to build another bird house or two. And this reminded me of a letter on my desk from the Burroughs Nature Club of Kansas City. "If you want to build a home for bluebirds or other beautiful songsters," it reads, "and don't know just how to go about it, the Burroughs Nature Club, 14 East 55th Street Terrace, Kansas City, Missouri, offers to send illustrated plans to anyone in the United States who will write for them."

The secretary of the club, W. H. Hoffstot, has been perfecting these plans for a number of years. Neither he nor any member of the club, the letter states, has anything to sell to those interested. "This is purely and absolutely an idea to foster the love of birds in the minds of boys and girls and to assist in the protection and development of more bluebirds in the United States. The only requirement is that a request for plans must be accompanied by a self-addressed and stamped envelope."

* * * * *

America lost a great philanthropist and The American Forestry Association a helpful Patron Member when Edward S. Harkness of New York died on January 29. His benefactions are said to have totaled well over $100,000,000. Keenly interested in forestry and other fields of conservation, Mr. Harkness became a Patron Member of the Association in 1924 and has since been a faithful although modest annual contributor to its educational work. In 1927, Mr. Harkness through his own foundation, the Commonwealth Fund, made a special contribution of $30,000 to help underwrite the Association's Southern Forestry Educational Project. It is not too much to say that Mr. Harkness' tangible interest in the work, together with that of John D. Rockefeller, Jr., and the late George D. Pratt, made this pioneering undertaking possible. It was a minor benefaction so far as Mr. Harkness was concerned, but it was a gift of major importance to the advancement of forestry, particularly forest fire prevention in the South.

* * * * *

According to Dr. John F. Shea, psychologist employed by the Forest Service to fathom the fire burning motives of the piney woods people of the South, craving for excitement in an environment otherwise barren of emotional outlets is a human match that sets many a fire. In earlier years when there was a living of more respectable sorts in growing patches of cotton and corn and letting cattle roam the piney woods, burning the woods had an economic base in the minds of these individualistic people. Today, however, it has become a game—and about the only one left short of "shootin' up kinfolk"—whereby the local people find excitement. It is a game of successfully outwitting the law and local forest officers.

Speaking before the Biloxi meeting of The American Forestry Association last month, Dr. Shea told the following story as typical of the deep-seated urge of these people to beat the fire prevention law and its guardians: "One old woman on her death bed summed up in a few words the feeling of these people. She lay for weeks sick and disabled. A friend in the Service called on her at her request. She said to him in effect, 'I'm proud you come. Maybe I ain't goin' to get up again. I reckon I ain't.' My friend asked what he could do for her. She replied, 'There ain't nothin' I reckon, because you wouldn't let me do what I want.' 'What do you want to do,' my friend asked her. 'Well,' said the old woman, 'I got just one wish. I'm a-hurtin' to burn the woods once more before I die.'"

Ovid Butler

Editor.

C. A. Musgrave

One-third of all our land is in forest, supporting nearly one-tenth of our population. To keep this land continually productive is our most challenging job of national defense, says Secretary Wallace. It is vital to industry and labor, it inspires and re-creates millions of people every year, and, most important, it conserves and regulates water, necessary to life itself

THE FOREST IN OUR LAND ECONOMY

By HENRY A. WALLACE
Secretary of Agriculture

THE productive land of this country was opened and developed over a period of several hundred years. Most of the time, up until 1930, there was a ready market, at home and abroad, for all we produced in the way of food, fibre and timber. No matter how many mistakes we made—how recklessly we cut our timber, how seriously we let erosion proceed, how intensively we tried to farm land unsuited for cultivation—it was, until relatively recently, usually possible to sell the products of the land at a reasonable profit. This overwhelming fact blinded the American people, I think, to the truly alarming problems that were developing.

After thirty years we learned that forest conservation is only one segment of the total land conservation job. The great depression sharpened our minds and opened our eyes, and we see that the whole problem of conservation is bound up with right use of land, and with the welfare of the people who live on the land. Few nowadays think of conservation in terms of setting aside a resource for future use. We think of conservation as management which preserves as it uses.

The Forest Service stood alone many years, waging the fight for the sustained yield principle, and it is largely because of the Forest Service that this principle has become the conservation principle for all agencies in the Department of Agriculture. The Department recognizes conservation of soil and other natural resources as one of the three major problems facing agriculture. The two other—stabilizing income and eradicating rural poverty—can never be solved permanently without solving the first. If our nation is to be a permanent nation we must learn to sustain the productivity of our land while we use it, whether for growing wheat, corn, cotton, grass, or trees. The Forest Service, in its zeal for conserving physical resources, has never forgotten the needs of the people who depend upon the land for their livelihood.

Public foresters, and most private foresters, long ago rejected the point of view of the lumber barons. The "cut out and get out" philosophy of forest management, if you can call it that, corresponds to the way we have, in this country, managed our private farm lands. "Wear out and move on" too often seems to have been the policy of agriculture.

Foresters, looking at the wake of cutover lands, at ghost towns, stranded lumbering communities, and rural poverty on deforested lands, immediately saw the ill effects of misuse of land and destruction of a resource. Looking the problem in the face they translated destruction of resources into terms of human misery. The consequences of misuse of agricultural lands are the same, only they appear more slowly. Now that we have as many abandoned farming communities as we have abandoned forest communities, we are looking squarely and honestly at all our land problems.

We are accustomed to thinking of our country as a body of land just under 2,000,000,000 acres and rich in resources. So many acres is forest land, we say, so many acres grassland, and so many acres farming land. But this does not give us a very vivid picture. Examine, instead, a single watershed. Working together, the Forest Service, Soil Conservation Service, and Bureau of Agricultural Economics have surveyed scores of them in the past few years, making ready to help farmers and forest owners treat all the land for purposes of flood control.

In a watershed live a great many people. All of them get their living from the land, either directly or indirectly. Some live in town; others on farms. The land in the watershed consists of forest land, grassland and farm land—not always in great blocks of each—indeed more often in intermingled patches. For example, nearly a third of our forested land is within the fences of farms. Where there are large blocks of public forest land, farmers use it. They run sheep and cattle in the national forests, using the national forest range to supplement their own pastures, and their farm land to produce feed to carry their stock through the winter. On the entire watershed there may be serious erosion and runoff problem, which must be corrected on all classes of land. Again, it is quite likely that some land in farms should be put back into forest or range cover. Also, to a considerable extent, the pattern of the watershed is repeated on each individual farm—that is, each farm probably has some cultivated land, some grassland, some forest land. So, if we approach the problem from the standpoint of the people who live on the watershed, our problem is how can we use our productive land resources —whether forest, range, or crop land,—in a pattern that will give them the maximum returns, consistent with the maintenance of the basic resources of the watershed.

The Congress and the State Legislatures have provided a whole group of adjustment instruments which land users—whether farmers or forest owners—may use in achieving a better pattern of land use. The essential thing in administering these instruments is to obtain coordination of all programs bearing on land use—from the research and fact-finding stage, through the educational and planning phases, and into action. This is a mammoth cooperative enterprise, in which farmers, forest owners, educators, and local, state, and federal officials are taking part.

Land users are now analyzing their community, county and watershed problems and planning land use adjustments which millions of farmers and forest owners are making, with the aid of our public programs. At local, state, and national levels the Forest Service, Soil Conservation Service, Agricultural Adjustment Administration, Farm Security Administration, Extension Service, and Bureau of Agricultural Economics are making contributions to the total program. At the state level, the State Departments of Agriculture, State Experiment Stations, and State Forestry Departments are helping to plan and carry plans into effect. At the local level, supervisors of soil conservation districts, county agents, and community and county land use planning committees

U. S. Forest Service

The fundamental purpose of our forest policy must be to assure social and economic security for dependent people and communities, the Secretary declares. The public forests of the West, for example, must continue to serve the herds of the stockman, the mills of the lumberman, the irrigation ditches of the farmer, and the reservoirs of towns and cities

of farmers and forest users are doing a large share of the work. The Forest Service, as well as the other land use agencies of the Department, because of its experience in forest management, its philosophy of service, and the farflung decentralized character of its organization, is making a major contribution toward helping these local people to find and effect solutions to their land use problems.

The Forest Service takes part in the total land use program of the Department in many other ways. I can perhaps best illustrate this in program terms. The Forest Service helps the Agricultural Adjustment Administration and Soil Conservation Service carry on conservation programs on range lands. It also administers the naval stores program for AAA. The Forest Service divides with the Soil Conservation Service and Bureau of Agricultural Economics the responsibility for carrying out the upstream flood control program. The Farm Security Administration and Forest Service work together on rural rehabilitation programs for forested areas. The Forest Service helps to develop lands that are purchased under the submarginal land provisions of the Bankhead-Jones Farm Tenant Act, if such lands are best suited to forestry. And the Service, as I have said, takes part in local, state and regional land use planning.

Similarly, other bureaus of the Department help the Forest Service to carry on its work. In dealing with insect problems, the Forest Service relies on the Bureau of Entomology and Plant Quarantine; on the Bureau of Plant Industry for help to control tree diseases and for soil surveys and analyses; on the Bureau of Agricultural Economics for economic information; on the Bureau of Animal Industry for livestock information in its range work.

When we look back to 1905, we are greatly impressed by the accomplishments of the Forest Service and other cooperating agencies in this field. As we look ahead we are even more impressed by what needs to be done. In the light of the whole job, the accomplishments so far seem pitifully small.

Forest land makes up one-third of all land in the continental United States. Directly and indirectly, forest resources help support nearly one-tenth of all our population.

Whether or not forests can be cut at a profit, they help prevent erosion and floods and the enormous and recurrent damage they do. They help to conserve and regulate water, which is vital to life itself.

The forest resource provides shelter and food for domestic stock and wildlife. It inspires and re-creates

millions of people every year. It is vital to industry and labor.

Yet, as I travel South and West and North, I am indelibly impressed with this fact: Although forests are living things, and can be cropped, we are still exploiting them. Forest communities, once the timber is cut, are left desolate and forlorn; too seldom is a forest used as a permanent resource capable of supporting a permanent community. We still denude our watersheds and cause fertile valleys and industrial cities to suffer, year after year, from erosion and floods.

The forest, unlike a mineral, is a renewable resource. Man can grow forests. He can, if he will, provide forest industries with continuous supplies of basic raw material and keep labor continuously employed. Yet less than thirty-five per cent of our forest land now bears trees big enough for sawtimber. More than one-third of our remaining sawtimber forests are economically unavailable. Annual growth in usable sawtimber forests is one-half less than the annual drain from them.

As a nation we are, therefore, still depleting our capital stock of usable forests—just as we are still depleting our capital stock of soil resources. We are far from being on a maintenance basis.

This is not a healthy condition. It leaves no doubt in my mind of the urgent need for a broad, constructive forest economy for the nation. I believe we should look forward to an economy based on restoring forest land and keeping it in productive use. Such an economy would bring added security and stability to industry, labor, agriculture, and commerce.

War again has broken out in the Old World. In Europe and Asia men again have resorted to wholesale destruction, partly because they lack resources such as we have. There is in this a lesson to us in the New World. It should bring home to us the urgent need to conserve those resources that give us our security and stability. If the United States is to avoid the route older nations have taken, we must solve our own economic and social problems and strengthen internal as well as external defenses. Our land and soil, whether forested or cultivated, over the long pull is our first line of defense.

We must stop heedless abuse of natural resources like land, water and forest for they are the sources of our life, as well as sources of raw materials and income, and places to work. Our most challenging job of defense is not the building of tanks and anti-aircraft guns—necessary as they are—but the building up of the nation's natural resources and keeping them continuously productive.

It seems to me evident, (*Continuing on page* 126)

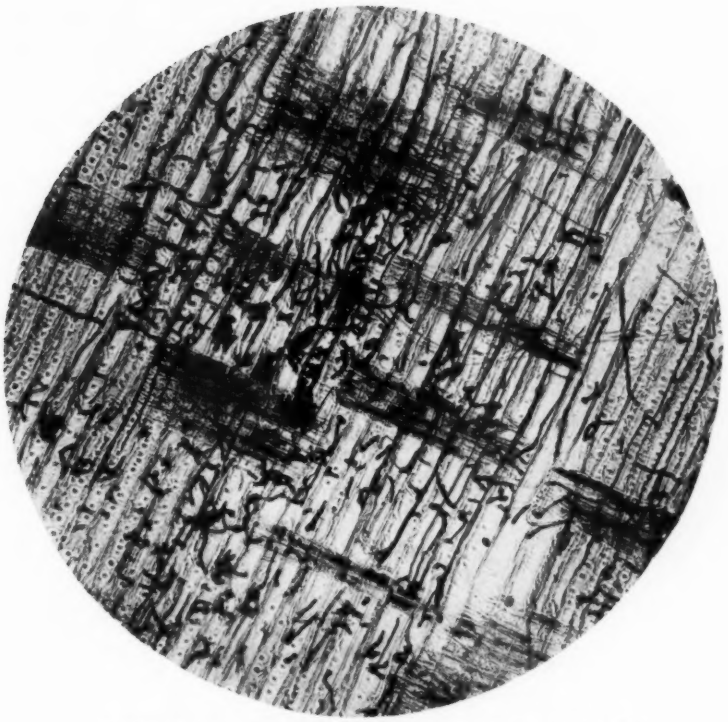
Soil Conservation Service

With nearly a third of our forest lands within the fences of farms, and three-fourths of all land capable of producing forests in private ownership, cooperative action by public agencies and forest land owners is needed to put our forest lands in order. Unless this is achieved, Secretary Wallace visions extension of public ownership and management

Southern Cypress Manufacturers Association

No one knows how long some native American woods will endure, but this cypress entrance door at old Fort Marion at St. Augustine, Florida, which was built by the Spaniards in the middle of the Seventeenth Century, still swings open to admit visitors. In the future research may provide many other woods with such durability by providing a chemical defense against fungi and other wood-destroying organisms

WOOD FUTURES



Fungi such as are revealed in this photomicrograph of wood cells of incense cedar cause discoloration and decay known as blue stain. They are now being fought successfully with chemicals

By L. F. LIVINGSTON

Photographs by the
E. I. du Pont de Nemours Company

NEAR my home in Delaware are a number of Eighteenth Century houses. It would do any lumberman's heart good to join the pilgrims who come each year to see them. Many brick and stone dwellings survive two centuries, but these houses are built of wood. They are sturdy and strong despite their years, and they are very beautiful.

The shingles of the walls are known colloquially as swamp cypress. Today the industry called "cypress mining" is gone, but at one time it was a flourishing business in lower Delaware. Ancient trees, felled by some prehistoric hurricane, lay deep in the mire of swamp land. Brought up and split into shingles, it was a wood with a natural preservative that has carried it through two hundred years and more. Along the coast are houses with cypress shingles worn thin as cardboard by the sand-laden nor'easters. They are still sound and look as though another century may pass before they need replacement.

Each time I go by these fine old homes I reflect that here is evidence of wood's desirability as a building material, given the quality of durability. This characteristic in lumber is necessarily an acquired virtue. Either some natural phenomenon must do the job, or man must duplicate it.

Building mechanics realize that for every nail they drive there are a million unseen attackers working to undermine their labors. Woodrotting fungi, termites, and marine borers cause an annual loss of $80,000,000. When a beam in a house collapses, or a pier sags into the sea, the chances are that these destructive forces have been at work. For that reason chemists, pathologists, and entomologists lately have devoted painstaking research toward a defense. Billions of cubic feet of treated lumber in use today attest the success of their efforts.

The physical structure and chemical composition of wood are still controversial. Scientists have been trying for years to unravel the problems involved, and their success to date has been such as to make certain new and strange careers for products of the forest. They have discovered ways of meeting the competition which has been curtailing wood's uses, and new ways of converting it chemically for various purposes.

Chemists and forest pathologists have delved into the cause and cure of deterioration. They have learned, for example, that decay is due not to the fermentation of the sap as was once supposed, but to attacks by living organisms. These "fungi" feed upon the cellulose or wood fibre and moisture. Under favorable temperatures and humidity, they experience rapid growth, pushing out greedy, thread-like filaments which eventually penetrate the entire area. Outward conditions affecting this growth are difficult to control. Chemicals which poison the ration of the rot-producing fungi, however, repel the invader and send him elsewhere in search of food.

The application of chemicals to lumber for the purpose of withstanding these assaults goes back into antiquity. Noah's reputed effort to have swathed the gopher wood of the Ark with pitch is well known. It is considered certain that the Phoenician galleys were charred as a protection against shipworms.

Numerous treatments have been tried since man first studied the problem from a chemical standpoint. Many were discarded as of little value. The general formulae call for high resistance to wood-destroying fungi, physical permanence, retention of poison, ease of application, and elimination of constituents harmful to humans. In addition, acceptance requires that no compound reduce

the strength of the wood or alter its general properties.

Experiments demonstrate that second growth timber, particularly pine, adapts itself readily to use when given a preservative treatment. It does not acquire the dense structure characterizing comparable species of virgin growth, and for this reason is frequently adjudged non-durable. The Forest Products Laboratory, however, has shown that there is no basis for discrimination in cases where durability alone is the sole governing factor, although the second growth timber, with its high sapwood content, is obviously less resistant to decay and insect forays.

Interesting experiments are being made in many parts of the world to further the efficacy of safeguards against the enemies of wood. In Germany, attempts are being made to inject aniline dyes into the growing tree. An even color throughout the tree is being obtained. Both in this country and abroad, efforts to inject a preservative into growing trees have been made with some promise of success.

Air seasoned lumber need no longer be subject to attacks by fungi. By this equipment boards are passed through a chemical bath as protection against stain and mold

It is true that chemistry has evolved a long list of products and processes that have cut into the markets for lumber. Some of these developments have involved the substitution of entirely new products, made from raw materials other than wood, for lumber. Others have utilized wood, but by changing its chemical and physical properties have made substitutes competitive with lumber.

Although more lumber is kiln dried today than ten or twenty years ago, it will never be possible or economical to kiln dry all grades. It has been estimated that over half of our lumber is air seasoned, and is therefore subject to attacks of stains, molds, and other fungi, for parasites find a favorable place for their growth on freshly sawn lumber stacked in the yard to dry.

Ten years ago, strong soda solutions offered the sole means of keeping lumber from bluing or molding during air seasoning. But results were often poor and the cost high. Lumbermen needed a chemical that would do a better job and do it cheaper. This necessity was particularly great in the South, where kiln drying is not as widely practiced and conditions for stain and mold are more severe. The situation became so critical that lumbermen, government agencies, and chemical companies joined forces on an extensive research program.

The results serve to illustrate the possibilities of such cooperative effort. In 1928, du Pont chemists supplied a chemical, ethyl mercury chloride, that controlled blue stain better than soda. In 1930, this compound was introduced commercially. Called "Lignasan," it was the first of the modern anti-stain chemicals. In 1933, the chlorophenols were introduced by others. Du Pont chemists, in the meantime, have continued their research to find new and cheaper anti-stain chemicals and to improve upon the performance already obtained. This culminated recently in the introduction of an improved "Lignasan."

Not all research projects yield such quick and valuable results as the anti-stain chemicals, but it is an object lesson in what can be done. Today it is possible for a lumberman to stack his lumber in his seasoning yards and by using anti-stain chemicals and observing good yard practices he can be assured of producing air-dried lumber practically free from stain and mold. More than fifty per cent of air seasoned lumber is now so treated.

There is a challenge in the field of preservatives—a challenge to both lumberman and chemist. Creosote and water soluble preservatives are available and are being used in increasing quantities for poles, piling, railroad ties and heavy construction timbers, thereby enabling them to meet the challenge of competitive products.

For use on mill work and small dimension lumber, oil soluble preservatives are preferred and definite progress is being made in their development. Effective materials are now available and others are under active development. Among the materials showing the most promise at present are phenyl mercury oleate and certain of the chlorophenols.

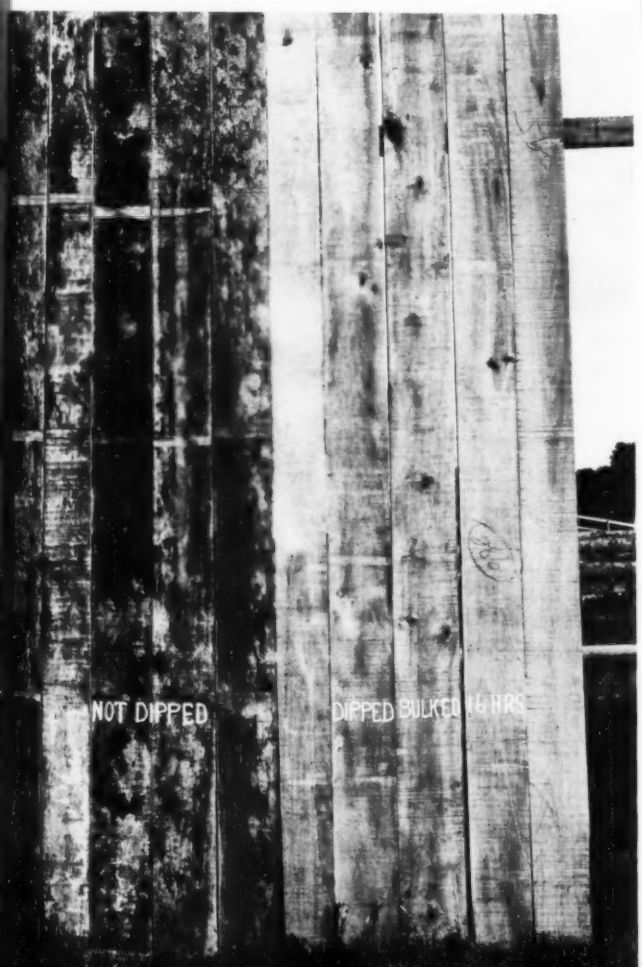
Everyone is acquainted with losses caused by seasoning checks that develop during air seasoning and kiln drying. Some of our most durable and valuable woods—

Douglas fir, cypress, and oak—suffer severely from this. Testing green lumber with common salt solutions or with dry salt has been found to change the distribution of moisture and influence the rate of drying so that checking is largely eliminated. But salt has certain weaknesses. It is, first of all, corrosive to metal, a fact that all but eliminated it from consideration. Secondly, salt treated lumber has a tendency to absorb moisture from the air with the result that moisture condenses on the surface.

Recently other chemicals have been tried. Urea and invert sugar have been found to accomplish the same results as salt without offering its inherent disadvantages. The production of cheap synthetic urea by the chemist has made its application possible, but much experimental work remains to be done in the lumber seasoning field. The rewards, however, are great enough to merit this research.

Closely related to chemical seasoning is the problem of preventing shrinking and swelling of lumber in use. Sticking doors and windows, warped tables, rattling windows, and dresser drawers that will not open are the unfortunate consequences of these phenomena. This problem is being attacked primarily by concerns having things to sell to the lumber consumers and not by the lumber manufacturers. The small amount of research done has brought to light several compounds that appear to prevent the entrance of moisture and water and prevent shrinking to a considerable degree. None, as yet, however, can be said to be cheap or entirely satisfactory.

Below, the result of surface treatment with "Lignasan," one of the modern antistain chemicals. Right—Treated lumber seasoning in stacks without staining and depreciation



Dissatisfaction with lumber can often be traced to the poor quality of paints, varnishes, and other finishes applied. Every advance in the field of paint chemistry may prove a direct benefit to the lumber industry. With the more and more air conditioning systems in use, paint failures increase, due to accumulation of condensed moisture beneath the paint films. Paints of better adhering properties, moisture-proof undercoats and moisture barriers, will be needed to prevent wood from meeting more competition from substitutes.

Chemical agents for the fire-proofing of lumber have had some attention. Treatments that will make wood fire-resistant are now available, and application on a large scale is beginning to indicate results. The Harvard University athletic field may be cited as an example. Chemically-treated wood used in construction of baseball stands has stemmed fire hazards completely.

The wood was impregnated under pressure with three-quarters of a pound a cubic foot of chromated zinc chloride, a modified form of the standard zinc chloride wood preserving salt, developed through cooperation of wood preserving interests. Attention was directed to treated wood as a solution of the fire hazard problem in baseball stands by the record of the Harvard football stadium, where wood treated with the older treatment, zinc chloride, has been in use since 1929.

Every tree in Finland's war forests, it has been said, is equal to one Finnish soldier in holding off the invader

Movietone News—from Wide World

FINLAND'S FOREST SOLDIERS

By JOHN D. GUTHRIE

THE FORESTS have long been Finland's front line in her fight for social and economic growth and stability. Now her trees are truly her front line soldiers in her struggle against military invasion.

For grim war from the East stalks through Finland's once quiet forests. Machine guns are shattering pines and spruces and birches. Bombs out of the clear, cold northern sky are gashing holes in her forest floor. Tanks are crushing into the snow and ice the young forest seedlings and saplings. Her paper, pulp, plywood plants and sawmills along her rivers and her southern coast are targets of enemy airplanes. Yet the hope of Finland's future well-being is now as always in her forests, her "green gold."

No less truly than her hardy people, the trees of Finland stand guarding her eastern frontier. Great forests, along with swamps, bogs, lakes and rivers, make a terrain ill-suited to modern motorized warfare. Without these natural barriers, it is doubtful if her citizen army, however valiant, could hold out for long against the invading Red hordes. It has been well said that every tree in Finland's war forests is equal to one Finnish soldier in holding off the invader.

And it is only natural that the tree should fight side by side with the soldier, to die with him if that is to be their fate. For the men of Finland are essentially men of the forest; indeed, it might be said that the citizen army now defending Finland is an army of lumberjacks.

Largely a rural people, the Finns work in the woods during the winter cutting logs and pulpwood and hauling them to the lakes and rivers. In the spring, these timbers are floated or "driven" to the sawmills or pulpmills. After this, the woodsmen turn farmers for the summer, growing rye and barley, rutabaga and cabbage and potatoes. But in between these activities they are soldiers, voluntarily training even though they have passed beyond the age of fifty.

They train to fight in the woods, in the forests of Finland's eastern frontier, the only front that little country has worried about since 1918. Being an outdoor people, hardy and resourceful, and not unlike our early pioneers in their marksmanship, the Finns develop their ability to cope with an enemy superior in numbers by tactics much like the Indian fighting in our early West. The friendly forest is the cover, the shelter, and, when a white blanket of snow is on the ground, the natural camouflage needed for conflict in this North Country.

At the present the invader has attacked at three points along Finland's eastern frontiers—a boundary, incidentally, set up and recognized since 1617. "The Bear that walks like a Man" is lumbering and wallowing westward, clawing at the little nation on the Karelian front just north of Leningrad, on what is called the Isthmus; about "the waist" with the announced intention of cut-

ting the country in half, with the Gulf of Bothnia as the objective; and lastly, far up inside the Arctic Circle, in the Petsamo region, obviously to capture the Finnish open Arctic port of Liinatramari. From the air, of course, the attack has been widespread.

What has little Finland done to bring on such a calamity? Has she invaded any neighbor's lands, or killed its subjects? It is claimed that she "threatened" Soviet Russia, and that her people were therefore a menace to this big eastern neighbor. In any event, the pages of history have been turned back and once again Finland is fighting for her independence.

Finland, or Suomi, as she is known to her people, is a small country, with only some 149,954 square miles and with about ten per cent of her gross area in lakes. That is about the size of the states of Montana and Delaware. She has 3,835,000 people—Montana and Delaware have but 800,000—compared with the Soviet Russia's 170,000,000. For the entire country, there are twenty-five persons for every square mile. Sweden has thirty-six, France 196. As to the distribution of population, south Finland has nine times more people than north Finland. About ninety per cent speak Finnish, the rest Swedish. Eighty per cent of all Finns are rural; there are no large cities. Helsinki, with 300,000, Tampere, with 75,000, and Viipuri, with 74,000, are the largest.

The blonde and blue-eyed Finnish people are neither Scandinavian nor Slav. Their ethnologists admit they are not sure where the race came from.

The forest soldiers of Finland force the mechanized army of the invader to attack along snow and ice bound roads—a dangerous and demoralizing venture

Finnish Travel Information Bureau

The friendly snow-blanket forest is the cover, the shelter of the Finnish soldier. He adds to this natural camouflage by wearing a white uniform

Linguistically and in physical appearance, they seem more closely related to the Magyars of Hungary than any other European stock.

The Kalevala, the national epic of Finland, is actually a small part of the collected folk poems of the country, which number some 600,000, the oldest going back two to three thousand years. The Kalevala is the foundation on which the Finnish people built their native art and literature. The main difference between the Kalevala and other national epics is that there is no bloodshed in Finland's saga. It is lyrical, gentle, full of haunting beauty and romantic pathos. Longfellow's "Hiawatha" is in the same meter as the Kalevala.

The Finns are short, stocky and muscular, with great powers of endurance and resourcefulness. They are mentally keen, independent, energetic, courageous, and afraid of neither hard work nor a fight. Lovers of the outdoors and living in a far northern climate, they are naturally expert in skiing, skating, and other sports. Their Nurmi is a world synonym for speed on the track.

The citizen army of Finland is an army of lumberjacks. The men work in the forests during the winter and on farms during the summer. In between these activities they receive military training

The Finn is infinitely quicker, mentally and physically, than the Muscovite. The typical Russian is big, clumsy and awkward, slow in his mental and physical reactions, and is no match whatever for the small, agile Finn. In a personal encounter, and armed only with his famous pocket dagger or "puukko"—a far more effective weapon than a bayonet—the Finn would give an excellent account of himself.

Love of freedom and self-government has been nurtured in the Finnish people for centuries, although they were formerly governed first by Sweden and then by Russia. They covet no territory, have made no threats. They are a peace-loving people, wanting only to be let alone to develop their country and its resources.

The first Finns came into their country during the first centuries of the Christian era. The Swedes came about 1000, first as missionaries, then remained eventually to govern the entire country. The present eastern boundaries of Finland were set up in 1617, except for the Petsamo area in North Lapland. From 1630 to 1648, Finnish troops, aids of the Swedes, were fighting religious wars in Germany.

During the 18th century Sweden gave up Finland to Russia. For nearly 700 years under Swedish rule, the Finns freely acknowledge their debt to that country for bringing them religion, education and western culture. From 1809 to 1917, Finland was a part of the Russian Empire but an autonomous Grand Duchy, governed in accordance with her old Swedish constitution and with her own currency, her own national army, her own system of schools and her Diet and Senate. At the beginning of the present century, however, Russia is said to have begun a policy of oppression and persecution. The Finns for some time tried passive resistance. Finally, when the World War came and with it the Red Revolution, Finland, on December 6, 1917, declared her independence. This was later recognized by Russia, Sweden, Germany, and other nations. In 1919, a new constitution was adopted by the Finnish Parliament declaring Finland to be a democratic republic.

The country is mostly a plain, although there are hills in the central, eastern and northern regions. The highest point is 4,344 feet, within the Arctic Circle. Some 60,000 lakes are scattered over Finland and toward the north the country has low granite ridges and outcrops. Seventy-five per cent of the land surface is covered with forest, stretching like a green mantle from the Gulf of Finland north to the Arctic Ocean, particularly along the eastern border. The ratio of forest land to total area is the highest in Europe. The government is the largest owner of forest land, holding over one-third. Scots pine forms forty-eight per cent of Finland's forests, with Norway spruce thirty per cent, birch twenty per cent, and less important species such as aspen and alder about two per cent. The mountain ash was once held sacred by the Finns. Now it is said the Finns tend to hold all trees sacred.

Finland has many natural barriers against invasion, her forests being her greatest natural ally. These, together with her 60,000 lakes, and her swamps, bogs and numerous rivers—not to mention few east and west highways—all help her in defense. The winter ice-cover of her northern lakes is often treacherous, sometimes breaking down under sled travel even though the ice is feet thick. This is due to the effect of the Gulf Stream. Another reason is the deep snows which often are so great that the weight crushes (*Continuing on page* 141)

THE CONTROL OF STREAM POLLUTION

By

HENRY S. GRAVES

ALL CAREFUL students of water problems agree that provision for an adequate supply for domestic use, including safe drinking water, is first in order of importance in the various services of water resources. There is also agreement regarding the urgency for measures to prevent continued pollution of streams, harbors and other waters, which jeopardizes public health, destroys aquatic life, affects industries and in other ways impairs public welfare.

Marked advance has been made in the last twenty-five years in disposal and treatment of municipal wastes. During the last six or seven years progress in reducing pollution from sewage has been especially gratifying. This has been due chiefly to federal subsidies and to increased public appreciation of need. There remains, however, a large number of localities where pollution from sewage is still very critical.

Far less progress has been made in reducing discharge of deleterious matter from industrial plants and active mines. Here the problem touches the reluctance of individual industries to introduce changes in methods of disposal of wastes if these involve increased cost of manufacture. Moreover, practical methods of disposal and treatment of certain types of industrial wastes have not yet been developed. Still again, public pressure for reduction of pollution is commonly very feeble if a specified industry constitutes a major element in local employment and community support, especially if pollution of a stream does not seriously affect the city or town where the plant is located. Oftentimes the chief damage is to those living downstream.

Most states have laws concerning water pollution but a large proportion of these laws are ineffective in substance or in administrative enforcement. Hence the national movement, rapidly gathering momentum, to secure measures which will control pollution of waters. There are, however, among advocates of pollution control, wide differences of opinion regarding the means to achieve this objective.

The Water Resources Section of the National Resources Committee has presented the results of about six years' study of the pollution problem in a comprehensive report entitled "Water Pollution in the United States." This report was transmitted by the President to Congress on February 15, 1939, with a brief message concluding with the following paragraph:

> "It is my opinion that pending further experimentation with interstate and state enforcement activities, Federal participation in pollution abatement should take the form of establishing a central technical agency to promote and coordinate education, research and enforcement. On the basis of recent experience, it should be supplemented by a system of Federal grants-in-aid and loans organized with due regard for a balanced program for public works of all types. The time is overdue for the Federal Government to take vigorous leadership along these lines."

This recommendation of the President expresses in very condensed form the major conclusions of the National Resources Committee. There would be provided federal leadership in research, public education, integration of State and local effort, and cooperation through subsidies and other means. There would be a central federal agency charged with the responsibility of advancing the abatement of water pollution supplemented by the combined cooperative and integrated activities of the National Resources Committee and other branches of the Government concerned with water problems.

It is to be noted that the President's recommendation does not provide for federal control or compulsion imposed on the states, communities or industries to take measures for abatement of pollution of waters. Direct enforcement would be exercised by the states through the police powers which they possess, as is now done by some states acting individually or through compacts, or through agreements where interstate problems are involved.

The question of enforcement constitutes the crux of differences of opinion regarding the means to secure effective results in reduction of pollution of waters. At the last session of Congress eight water pollution bills were introduced. Of these the Mansfield (H. R. 4314) and Barkley bill (S. 685) followed broadly the recommendations of the National Resources Committee, upon which the President's recommendations were based. In sharp contrast was the Mundt bill (H. R. 4170) which differed from the foregoing in that, first, it placed the federal agency concerned with water pollution in the Corps of Engineers instead of in the Department of Public Health, and, second, gave authority for direct federal enforcement of measures to abate pollution of navigable streams, if state action is inadequate. The advocates of strong federal leadership in promoting the reduction of water pollution have taken sides on the question whether the powers of the state should be used in enforcement, or the federal government should be granted powers for direct action, at least on navigable streams. As in various other problems of conservation

of natural resources the old question of states rights and extent of constitutional powers of the federal government has been raised with resulting controversies that promise delay in action.

In the debate now carried on, those supporting the President's program point to the rapid progress in recent years in disposal of sewage, the increasing efforts to strengthen state laws governing all types of water pollution, definite steps in various regions for compacts for common action on interstate rivers, and recent strengthening of public demand for strong public action in pollution abatement. They would build on what has been accomplished through state action and federal cooperation and would provide for much stronger leadership by the central government. Some persons strongly oppose direct federal enforcement because they honestly believe that the government lacks the power under the Constitution. Others believe that, disregarding the constitutional question, more rapid progress will be made over a period of years under the Administration plan of using state authority than by attempting federal enforcement that would be resented in many sections, would delay progress by prolonged litigation and generally lessen public support of the movement. And, finally, many regard the proposal for federal enforcement as an additional indication of the trend toward centralization in Washington of powers over the states and many phases of economic life.

Those who urge the immediate use of federal powers in enforcement of measures for pollution abatement emphasize the weakness of laws and administration in most states, the small progress made in checking the discharge of injurious wastes into rivers by industrial plants and active mines, and the increasing evidence of danger to public health, to aquatic life, and to other features of public welfare. They point out that state enforcement is handicapped as applied to interstate streams and can be secured only by joint action through compacts or agreements; and that such compacts are rare and are not likely to increase in number with any degree of rapidity. Without public enforcement industries will not voluntarily modify present methods of disposal of waste, unless, through some type of utilization, there will be a profit or at least no loss. A large part of the most serious threat to public health and to economic and social welfare is on navigable streams. Hence federal action is appropriate.

The Directors of The American Forestry Association have gone on record endorsing the principle that enforcement of action in pollution abatement should be through state authority. They also expressed its preference for placing federal activities in water pollution in the Department of Public Health. As a Director of the Association, I concurred in this action. Some of the factors which influenced my personal judgment in this matter are contained in the following paragraphs.

The abatement of water pollution is a problem in which all citizens and all units of government are concerned. Its solution requires public action, including enactment of laws prohibiting contamination of streams and enforcement of such laws. There are also required public works for treatment of municipal wastes, involving costs to taxpayers; and special measures to treat deleterious wastes from industrial plants which must be adopted as rapidly as technical methods can be developed. Consideration of the problem of pollution abatement from a national standpoint raises at once the question of division of responsibility for control of remedial action as between federal, state and local governments. Authority for enforcement centers now in the state which in turn may delegate authority to municipalities or other local units. Each state has some laws relating to pollution of waters. In most states these are in some particulars defective or weakly administered or both. Many states are backward in pollution control, just as in other aspects of public health and social welfare. Nevertheless, taking the states as a whole there has been a large volume of legislation, as has been shown by the fact that about half of the urban population is now being served by sewage treatment plants.

This is not in any way to minimize the magnitude of the problem that remains in sewage disposal or to overlook the small progress in control of water contamination from industry and mines, nor do I fail to recognize that financial assistance by the federal government is largely responsible for the recent progress of municipalities. The fact that the states are doing as much as they are, ineffective as it may be, constitutes a reason for my conviction that they can do a great deal more under the right leadership and further cooperative aid by the government. I am in favor of building on these accomplishments and of bringing every pressure and inducement to bear on the states to redeem their responsibilities to the limit of their capacities.

Control of water pollution is a national problem and requires a national policy for its solution. A national policy does not mean merely a federal policy which necessarily concerns primarily federal action. Today there are many separate state policies, diversified in character and effectiveness. The federal government is participating in the problem through public education, research, and in various special projects like sealing closed mines. But there is no national policy recognized by the various public and other interested agencies, which clarifies objectives and principles, defines division of responsibility of the federal, state and local governments, specifies lines of action and needed legislation, and thus serves as a guide in national and local planning and in coordinated effort.

National planning in any field of economic and social endeavor is a matter of progressive development. The National Resources Committee has through its extensive studies laid the foundations for a national policy of abatement of water pollution. It utilizes the recognized powers of the states and the existing body of legislation, together with the present policies and efforts of the federal government in extending financial and other cooperation, in public education and research. It indicates specific features of further legislation by the states. It urges as the next important step the establishment of a central organization in the federal government qualified to take a strong leadership in advancing the movement of pollution control and bringing together in unified effort all agencies to achieve practical results. This would certainly be a great step forward in developing a national policy and plan and in securing state and local support.

While heartily endorsing the recommendations of the National Resources Committee and the President as a wise step, I do not believe that it constitutes the final answer to the water pollution problem. In my judgment there are certain problems which in practice the states will not be able to solve. I refer to the contamination of interstate streams and particularly those which form boundaries between states. I believe in the principle of state compacts and agreements, but anticipate very long delays and difficulties in securing effective measures to reduce pollution by industrial plants and mines. It is my belief that ultimately the federal government will have to assume responsibility (*Continuing on page* 141)

No mortgage, no public debt—yet this Arkansas farmer has a new home. It cost $150, plus his own labor and farm materials

NEW FARM HOMES FOR THE BUILDING

By FRANK J. HALLAUER
(Photographs by U. S. Department of Agriculture)

This story of what is being done in some regions of the South, particularly in Arkansas, to provide better housing conditions for low-income farm families, is significant in view of the program recently announced by the United States Housing Authority. The federal project is designed to provide loans for the construction of new farm dwellings to cost approximately $1,700. The project places the number of farm families now living in sub-standard houses at 4,550,000 and states that only twenty per cent, or 910,000 families, qualify for federal loans. This being the case, what can the remaining 3,640,000 families do to improve their housing conditions? According to Mr. Hallauer, several million low-income farm families can have better homes in the next ten years without federal aid, in fact, without mortgages of any kind, by taking advantage of the self-help program developed in some rural regions. Under this plan, farmers may build new homes for as little as $150 in cash, providing they contribute their own labor and make use of building materials on their own farms.

"TEN-YEAR building program completed. Two million low-income farm families have better homes. No mortgage. No public debt."

What is wrong with this picture? Just a question of time. The program has not been completed, in fact, not even started. But if every county in every state in the country should start now to apply the 1938 experience of Benton County, Arkansas, then the above headlines can be written in 1950. During 1938 Benton County reported the building of sixty-nine farm houses, 400 brooder houses, and ninety barns—all among low-income families. Multiply this by 30,000, which is the number of counties in the United States, and the record for one year would be new houses on 200,000 farms; new barns and other buildings on even a larger scale. Repeat the program for ten years and the lower one-third of our farm population will be living in new or remodeled homes.

But how can this be done without these families mortgaging their future and without a large public debt? It is all a matter of self-help and the utilization of building materials at hand. Expert guidance, of course, is essential, but this was achieved by conducting home-building schools for the farmers and their families under the direction of county agents, with specialists in forestry, engineering and home management participat-

Extension Service, North Carolina State College

Above, the farm woodlot can supply most of the material for new homes for the low-income farm family. Below, what $280 cash and a lot of ingenuity can do. This house, built by a young farmer in Henderson County, South Carolina, has running water, ample closet space and a storage cellar

ing. Forty-four such schools were operating in Arkansas during 1938.

A brief review of a few representative cases, quoted from the report of the extension forester of Arkansas, tells the story.

By much planning, and the use of home labor and native materials, Mr. and Mrs. C. A. Taylor have been able to build a convenient and attractive five-room house for a cash outlay of only $85. This went for cement, nails, windows, doors, screens and papering. Mr. Taylor cut oak, cherry, and gum trees from his own farm. He worked at the mill to pay the cost of sawing logs into lumber. The home has a living room, two bed rooms with closets, a dining room, a kitchen with built-in cabinets, and cleaning and fruit closets.

Arthur Pickartz built a five-room rock house at a cost of $321. He cut 6,000 feet of lumber from his farm. Sawing and hauling cost $63.

Mr. and Mrs. E. M. Churchwell built a new home for a cash outlay of $51. Gum and oak logs from their farm were traded for lumber at a local mill. About 6,000 feet of timber was used. The 3,500 shingles needed to cover the house were made by hand by members of the family. Cash was required only for windows, screens, nails and doors. Even the $51 was obtained by selling logs. Said the Churchwells: "We are proud of our ability to do the work, and to have our home debt-free."

Wade Horn, using family labor and his own timber, built a barn thirty-two feet wide and forty feet long for $145 cash. It is valued at $450.

Mr. and Mrs. Olan Hardie started with a few acres of land and $13 in cash. The second year they built a four-room house at a cash cost of $150, using farm labor and materials.

Although Arkansas has made the greatest progress in a program to better housing for low-income farm families through use of home labor and materials, extension agents in other regions have not been idle. From Henderson County, South Carolina, comes the case of a young married couple, living with their parents, who decided to build a home for themselves. Their first step, under proper guidance, was to cut logs and build a six-room bungalow, closing the cracks with mud mortar. The chimney and fireplace were made of rock picked up on the hills on their farm. Expenditures for windows, doors, roof, and flooring amounted to $250. They lived in this house for three years when an opportunity came to buy an old house for $30. From this they salvaged every

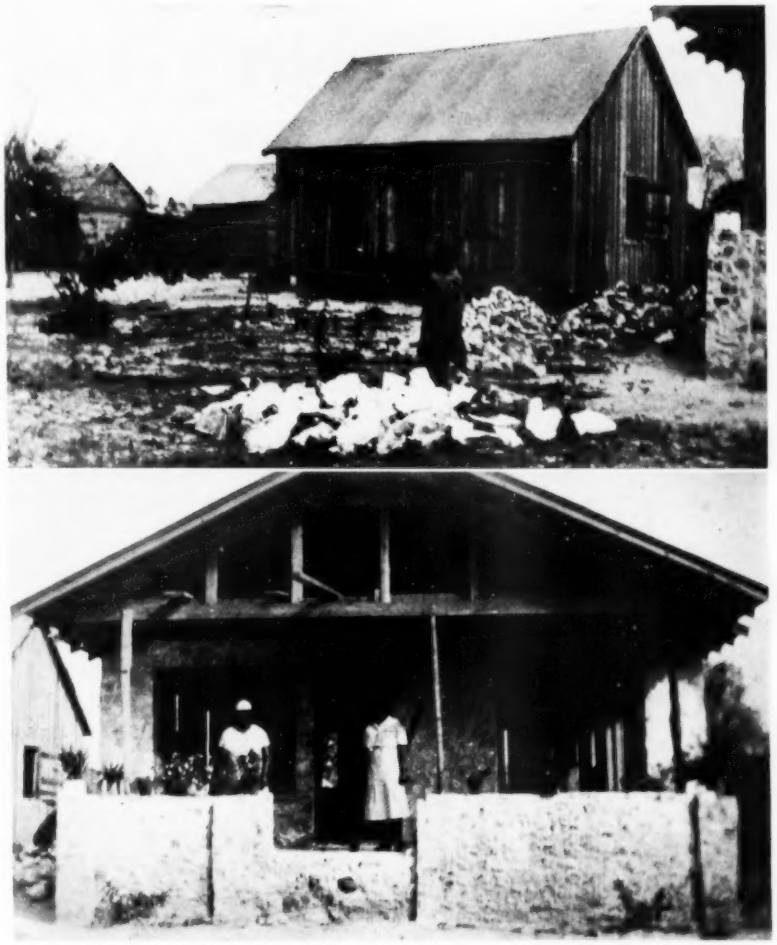
Workshops, barns and other farm buildings are being rebuilt or improved through programs of self-help

piece of good material. They even drew the nails from the boards and straightened them. As a result, they were able to improve their own home for the cost of the old house and seventy-five cents for new nails.

The kitchen is attractive and convenient. It has ample cabinets for storage, a sink with running water coming from a mountain stream. Walls and ceiling were painted in a cream color, the cabinets green on the inside. The paint cost $1.39. The main part of the house has been underpinned with stone, and a cellar built for storing such things as canned goods and potatoes.

On first thought, the answer to better homes for poor farm families is higher cash incomes. But the low-income farmer has little opportunity to increase his sale of products in a market that is already over-supplied. Nor has he much opportunity for employment off the farm. On the other hand, a farm housing program can be a source of employment and income for the farmer if it enables him to use his own labor and materials. It can provide him with a new home which will be the equivalent to cash income, even though it does not increase his cash receipts.

The farmer with $150 to spend is no prospect for a new house unless he can make up the balance in home labor and materials. The alternative is government subsidy. But government subsidy is aid from those of higher income. It does not raise the total income. On the other hand, if the low-income farmer is given the opportunity to produce wealth represented by his better buildings we are raising the national income by that amount. Of course, government aid is necessary in a self-help program, but it should be in the nature of training, supervision and planning in the full development of farm resources.



A farmer with $150 to spend is no prospect for a new house unless he can make up the difference in home labor and materials. This Florida family moved from a shanty, shown above, into a seven room house, below, they built of timber cut on their farm and stones gathered from the fields while plowing

The cheap rural home can have a good roof of wood shingles, easily made in the farmer's own woodlot

If it were solely a question of getting the families into better housing in the shortest possible time, the solution would be to pay for the construction work done. But when cost is considered, it becomes doubtful whether the rehousing of the lower one-third of our farm families is practicable on that basis. A program of self-help may be more difficult to set up, but it is the only basis on which the rehousing of 2,000,000 poor farm families becomes a practicable objective. Furthermore, the problem goes beyond putting poor families in better homes. The final success of the program depends upon whether or not they are kept there—whether they can maintain the new standard.

A farmer should be a "handy" man. If he is not, it is reflected in the condition of his tools, his harness, and most of all in his build- (*Continuing on page* 139)

CONVENTION SPOTLIGHTS FOREST OPPORTUNITIES OF THE SOUTH

THE Sixty-Fifth Annual Meeting of The American Forestry Association, held at Biloxi, Mississippi, February 1-3, stands out as one of the most constructive in recent Association history. Emphasizing the industrial opportunities and possibilities inherent in the intelligent management of the South's forest resources, the meeting highlighted major problems to be solved and progressive lines of action leading to a new forest economy for the Southland. In this picture, control of forest fires, development of new markets for wood, measures to encourage industry and farmers in permanent timber growing and strengthening of state forestry took foreground positions.

Held jointly with the Mississippi Forestry Association, the meeting drew foresters, industrialists and laymen from some twenty-five states. Each day's session was punctuated with a field trip and the evening of February 2 was given over to the annual banquet at which serious-minded discussion of forestry questions was dispensed with. The speaker of the evening, John Temple Graves II, was unable to be present on account of illness, and his place was taken by Clayton Rand, publisher and columnist of Gulfport, who in an address flashing with humorous and serious philosophy declared that the greatest conservation problem the United States faces today is the preservation of American democracy.

Among the resolutions passed at the final session of the meeting on February 3 was one declaring uncontrolled forest fires to be the greatest single factor responsible for the devastation and understocked conditions of the forests of the nation and calling upon Congress to amend the Clarke-McNary Act to authorize an annual appropriation of $9,000,000 to help states and counties provide more adequate protection for the productive forest lands of the country. Another resolution, recognizing that forty per cent of the forest lands in the South are in farm ownership and that their management for timber growing calls for a coordinated program of forestry, agriculture, and soil conservation, urged the U. S. Department of Agriculture to give greater recognition to the place and potentialities of timber growing on farms. "We believe," the resolution stated, "that the farm woodlands of the nation and the South merit federal aid through the many agencies of the Department on a scale in keeping with their importance and their possible contribution to a better and more stable farm-forest economy."

James G. K. McClure, President of The American Forestry Association, opened the meeting as chairman of the morning session on February 1. As first speaker, he introduced Henry T. Crosby, President of the Mississippi Forestry Association, who welcomed the representatives to Mississippi and the South. Mr. Crosby set the pitch of the meeting by pointing out some of the opportunities better management of southern forests offer to young men and women in the way of increased farm income and industrial employment. As a background for later discussion, Captain I. F. Eldredge, director of the Forest Survey of the South, federal Forest Service, thereupon gave a graphic summary of the South's wealth of forest resources.

The South desperately needs more industrial development, Captain Eldredge declared, to take up the slack caused by the shrinkage and economic dislocation of southern agriculture. Cotton growing, he pointed out,

Delegates present at the Sixty-fifth Annual Meeting of The American Forestry Association which

Control of Forest Fires, New Markets for Wood, Aid to Farmers and Industry and Stronger State Forest Departments Are Called For

has been forced from more than 16,000,000 acres with the result that in the last twelve years the Lower South has lost 138,000,000 man-days of employment. While some of these displaced cotton farmers are still seeking to subsist by agriculture and others have sought industrial employment, most of them are in their home counties either jobless or on relief.

Expansion of southern industry, Captain Eldredge asserted, must be based upon intelligent development of the South's natural resources. With 122,000,000 acres of productive forest land in the Lower South on which is growing over 113,000,000,000 feet of pine and hardwood, forests are one of the South's greatest and most promising resources. From the fact that the present drain upon these forests is approximately equal to their growth in wood volume, Captain Eldredge said it might be inferred that future expansion of forest industry in the region is not possible. This, however, is an erroneous conclusion because the South, if it applies better fire protection and management to its forest lands, could produce at least twice as much raw material for industrial and domestic use as at present. Emphasizing the point that the rural population of the South is increasing faster than that in any other section of the country, the speaker declared that avenues of future employment must be found within the region or other sections of the country will be over-run by forced expansion of population from the South.

Frank Heyward, director of the Southern Pulpwood Conservation Association, followed Captain Eldredge with a comprehensive appraisal of the current drain upon southern forests resulting from forest fires. Of the thirty-five million acres of forest land burned over in the United States as recorded in 1938, he said, ninety-five per cent was in the twelve southern states. Over ninety per cent of these southern fires are caused by man, mainly by the public. "Fires in the South," he continued, "each year cause an appalling damage estimated to be between twenty-five and thirty-five million dollars. In a region reputed to be the location of a newly vitalized and expanding industry and a region having unquestionably serious economic problems, the annual forest fire loss is a blot which belittles both the intelligence of its people and its legislators. * * * It is in the naval stores belt, a region of some forty million acres of some of the most productive forest land in the United States, that the most appalling fire losses occur."

Within this region, the speaker stated, forest fires are destroying approximately seventy per cent as much timber as is being cut in the form of forest products. There probably exists no single means of so greatly increasing the tax base of the South as by protecting its forests and cut-over lands from fire, Mr. Heyward asserted. As an example, he cited an area in the naval stores region purchased at $5 an acre and protected from fire which nine years later was appraised at $17 an acre on the basis of increased forest growth. "But the feature of fire protection which outweighs in importance all other phases combined," he declared, "is its effect on unemployment." For a large pulp mill, he said, the annual labor requirement in the woods and in the mill is 800,000 man-days. This is equivalent to the labor needed to plant, tend and pick 100,000 acres

was held jointly with the Mississippi Forestry Association at Biloxi, Mississippi, February 1, 2 and 3

of cotton. Forest fires in the South can be controlled, he declared, and the greatest instrument for their control is organized protection. To this end, he urged adoption of an $18,000,000 budget, one-half of which would be provided by the federal government and the other by the states.

Following Mr. Heyward, Dr. John P. Shea, psychologist of the United States Forest Service, who has just completed a six months' study of the piney woods people, presented his findings. Speaking on the subject "A New Design for Forest Fire Prevention in the South," Dr. Shea said that the purpose of the study was to determine why the local people persist in burning the woods and with that knowledge to develop new methods—educational and otherwise—to correct the traditional habit. Selecting a typical region in a national forest in Alabama, Dr. Shea lived with the piney woods people, studying their social and economic status, their human behavior and their action motives.

"We have here in the South," Dr. Shea said, "an agrarian group whose culture pattern favors woods-burning because of long standing custom. Between the culture pattern as a whole and the environment as a whole, we find a conflict situation. The agrarian group is in conflict with its unfavorable forest environment. Like all human cultures this agrarian group is exploiting its environment in ways peculiar to its culture. This is done because of outmoded agricultural practices based upon the lore and tradition of their forefathers who believed in woods-burning."

As a folk practice, Dr. Shea asserted, woods-burning originated as an economic need but it has undergone a transformation in its values to the people. Living conditions have closed down upon them to the extent of blocking their basic human needs and life has reached the point of frustration for them. Woods-burning persists as one of few outlets left for emotional expression. It serves the people as a sport, a recreation, an opportunity for some excitement in their lives of low stimulation environment.

"Woods-burning," he said, "gives them distinct emotional satisfaction which they strive to explain away as we do our satisfactions in killing wildlife by hunting and fishing; by pseudo-economic reasons that spring from defensive beliefs which are emotionalized defenses of their feelings, their habitual ways of life and their culture. They are the defensive beliefs of a disadvantaged culture group." Mere propaganda and prohibitions, according to Dr. Shea, "are about as effective as a popgun against an elephant" in changing these deep-seated beliefs. These people will continue to burn the woods according to the pattern of their ancestors until real "habit changers" are put in their way.

The new design which the speaker proposed is a plan of re-education of the piney woods people through social action—a plan of getting cooperation by helping the disadvantaged persons to help themselves. He would block off the old undesirable habit and encourage, stimulate and reward the new more desirable habit of preventing fires. The Department of Agriculture, he says, has the facilities for education, social betterment and improved agriculture and soil building practices, but they are not being sufficiently used or implemented, particularly at focal points within thickly populated forest regions.

"Until this is done," he declared, "we shall fail to come to grips with the main problem—the forest resident—and fail to apply 'habit changers' at the root of the difficulty."

To block off more effectively the old habit of woods-burning, Dr. Shea advocated a strengthening of law enforcement at its weakest point. In the educational and social field he laid down a ten point plan of action based upon the establishment of forest demonstration areas as "islands" that would show the piney woods people what improved agriculture can do; and within these demonstration areas the establishment, preferably by the local people themselves, of "people centers" as meeting places and sources of recreation and education. Through these centers the people could be led to activities that would divert the motives for woods-burning into more constructive channels and at the same time would improve their impoverished lot. "Such remedial measures," he said, "are designed to work with, not against the grain of human nature. Only in such ways can human behavior patterns be changed and lasting fire prevention achieved."

Following the morning session of February 1, the afternoon was devoted to a motor field trip of the forest region tributary to Biloxi. Included in the trip was a visit to the DeSoto National Forest and the Harrison Experimental Forest of the Southern Forest Experiment Station. An evening session of the convention was held in the hotel pavilion where H. G. Meginnis, of the Southern Forest Experiment Station, summarized the water and soil conservation problems of the Lower South; and Dr. W. C. Lowdermilk, recently returned from an eighteen months' visit to fifteen foreign countries studying land use, gave an illustrated lecture on "The Drama of Civilization as Told by the Land."

The meeting on the following day was opened by Henry T. Crosby, president of the Mississippi Forestry Association, who described briefly the activities of his Association. He was followed by J. B. Snider, former Lieutenant Governor of Mississippi, who outlined the legislative program which leaders of that state are presenting to the present session of the Mississippi legislature. M. L. Wilson, Assistant Secretary of Agriculture, was unable to be present in person on account of illness and his paper was read by Mr. Donald C. Blaisdell. Discussing the place of forests in the land program for the South, the Assistant Secretary expressed the belief that not only may public regulation of forest lands be called for but that any substantial extension of federal aid to the states should be conditioned upon greater activities and expenditures by the states and private land owners.

The next speaker, Mr. L. F. Livingston, manager of the agricultural extension division of the Du Pont Company, and a newly elected director of The American Forestry Association, enthused the audience with a rapid fire talk on the possibilities of "Industrial Research as a Market Finder for Wood." After reviewing briefly how industrial research has already helped wood to hold some of its past and present markets and to find new ones, Mr. Livingston opened a whole new world of possibilities for wood as a cellulose product. Exhibiting samples of one cellulose product after another which have recently been developed or are in course of development through research, the speaker said that all of them might be made from wood cellulose. "For years," he stated, "Du Pont used only cellulose from cotton but about 1921 it started using wood cellulose in rayon manufacture. Later it was adapted to 'cellophane' cellulose film; and in 1936 we used 94,000,000 pounds of cellulose from wood as compared with 51,000,000 pounds of (*Continuing on page* 139)

OPEN SPACES AND SPEEDSTERS

On the Snow-Covered Western Plains Men and Dogs Match Speed with the Fleet Coyote

By LEON V. ALMIRALL

WE often hear about the dearth of the "wide open spaces". Yet, if you will visit my ranch within sixty miles of Denver I'll convince you that assertion is wrong. True, some twenty years ago the open spaces may have been a bit wider, but they have not shrunken to the extent that they exclude some of the features which went with them.

Visit me in the fall or early winter, and I will demonstrate. We will sashay forth, either on horseback or in my car, and you will see and hear things. You will see speedy cowponies with their riders hurtle across hard-pan dirt, and hear the rhythmic roll of their hoofs as they pound along in pursuit of a very elusive object. Not a polo ball, but something far more difficult to get close to.

The hunters—the author and Dr. Cunningham and their coursing chariot, with one of the dogs on the back seat

Between them and that gray-haired, four-legged object, there will be long, lean hounds, eagle-eyed, and clean of limb, with rippling muscles to propel them ahead with distance-eating strides after one of the swiftest of our prairie denizens, the coyote. More wire fences than of yore slow the race a shade, for while the hounds slither under the bottom strand, we dare not send our ponies at the top. Instead, we halt while one man slips from his saddle with a staple-puller, yanks out the staples holding the wires to the posts, and lowers the wires. Then he holds them to the ground with his foot while his companion leads the wise ponies across. Of course the wires are again put in place and stapled.

Add to the wire menace deep, dry washes over or into which our ponies take us, slipping and sliding, their forefeet stuck hard down into the shifting dirt. We brace back against the high cantles of our saddles until we hit the sandy bottom, then we straighten up. Sometimes, at a dead run, our ponies meet a small arroya coming towards them, and coming fast. So, they take it in stride and we soar over space.

Today, and for some years past, we who course coyotes with what we call "running dogs",—greyhounds, Russian wolfhounds, Scottish deerhounds and their hybrids, dogs with hawk-like vision and unbelievable speed—often use light, small motor cars. The variety depends upon the wherewithal of the courser and his wisdom.

When the coyote is spotted, similarly as when we were on horseback with our hounds trailing, only now they ride in the car with us, we try to get as close as possible, say, to within 150 yards, before we turn the dogs loose. Just in case you think this should be easy, let me remind you that, excepting the elephant, there probably is no more canny animal than this tenor of the plains and hills. He suspects every strange object in or on a terrain with which he is intimately acquainted. From long experience, he has learned that the hand of all men are against him, even though it is a matter of fact that jack rabbits have done more harm than the coyote tribe. So, you cannot drive right up to a coyote and turn loose your hounds. Wariness has become not only his middle name, but all of it.

But the very fact that one must pit one's wits against those of a tricky animal, in whose hard skull no small amount of gray matter lives, is a very great element in the lure of coursing coyotes, either on horseback or in a car.

The fall day on which we set out for a course is ushered

in by a light skiff of snow, to dull the thorny prick of cactus against the dogs' foot-pads, and make the going slippery for our car. But the tang is in the air, wafted down from the Continental Divide.

Into a crate on the chassis of our car we load three pure-bred greyhounds, Minnie, Maud and Mike. After twenty years at this game, and with all varieties of running dogs, I have found none so good for this sport as these speedsters. Then my friend, Dr. T. D. Cunningham, M.D., but Don to me, climbs into the driver's seat beside me. I step on the starter, shift gears, and give her the gas.

Out through the ranch gate and across the level stretch of white-mantled plains we glide on our way. Five, ten miles go by, and yet no sign of the yipping, gray, ghostly shape of a coyote. Man's war against them has taken its toll. But we are not discouraged. Many times in the past we have ridden our ponies forty miles, only to return empty-handed. That is part of the game.

I head out for level going, and the wheels spin a bit on the soft, moist dirt. I slip my clutch and race my motor. The wheels take hold, and up we go. Just as we hit the top we see Big Boy trotting away with backward glances over his shoulder. I turn the car sideways with one crate door towards the coyote, for the hounds have already spotted their enemy. A chorus of yelps and howls blasts the quiet, thin air. Don jerks the wire which holds the catch on both doors. They fly open and out go the three hounds. Animated bunches of four-legged, shorthaired speed, they hit the grit, and the chase is on.

Already Gray Boy has decided to go away from there, his haste made greater by the hounds' yowls of confined displeasure. I give the dogs twenty-five yards to get going. And now, having had an eyefull of their vanishing prey, they fairly make holes in the horizon and scorch the ground with burning speed. They spread out fan-shape, like the good coyote dogs they are, knowing full well what a dodger, as well as speedster, this gray

Trophies—when the hunt is over, and dogs and hunters rest

Then Don, with the quiet assurance of an oldtime hand at this game, says, "Over to your left, Al. There's one."

I slow down but do not stop. Any untoward action on our part now will increase the suspicion already rife in the skull of our quarry, and he will be off on the instant. Focusing my gaze, I see the coyote nosing here and there in a prairie dog-town, so engrossed for once that, apparently as yet, our presence has not been noticed. We are thankful for so many fat, chattering little dogs, and that the slight breeze which stirs is against us.

"A nice one, Don," I say. "You made a good spot. I'll try and ease the old bus up a bit closer."

Thanks to a handy dip in the prairie which snakes its way in the general direction of the coyote and dog-town, I manage to do that, while Don stands on the running board to keep our quarry in view. We slip nearer by a hundred yards. Then another fifty. But now Gray Boy's keen ears must have heard the mesh of the gears, for Don leans down and whispers, "He's moving," and motions which way with his hand.

shape ahead of them is. If he ducks to one side now a dog will be there to dissuade him.

We are sifting right along after the chase. Look at that scamp run! He is no mean streamliner himself, but the pure-breds pour it on. Right now they have closed the gap until Mike, with no regard for "ladies first", is not ten yards behind this flat-country, four-legged gangster. Minnie and Maud hold the pace and run on his heels. Yes, and we are not doing so badly ourselves, considering the going. The speedometer hand stands at 35.

Don points at it and yells, "Step on it, Al! Mike's about to make it a first down!"

I "step on it", see a big bunch of soap weed coming our way and yank the steering wheel. We veer sharply, teeter on two wheels, make a four-point landing, and go on our way. Just in time, too, for big, tawny Mike reaches out his lean, white-fanged jaws, fastens them in the coyote's flank and flips him over. But this coyote is nobody's fool. He is big and husky. He bounces to his feet before Minnie and Maud (*Continuing on page* 143)

EDITORIAL

WHY ROCK THE BOAT?

A RENEWED attempt is being made by the Interior Department to get the Forest Service and the National Forests away from the Department of Agriculture.

There is no good reason for the proposed transfer of the Forest Service or any part of it. Moreover, it would be a severe and unnecessary blow to the farmers of America. The Farm Bureau Federation, the National Grange, the Farmers Union, the National Cooperative Council, the Federation of Milk Producers, and other farm organizations have made official protest against it.

So have the National Federation of Women's Clubs, The American Forestry Association, the Association of State Foresters, the Society of American Foresters, the National Livestock Association, the National Wool-growers Association, the National Lumber Manufacturers Association, the American Mining Congress, the California and other Western Chambers of Commerce, the Izaak Walton League, the Camp Fire Club of America, and half a hundred other organizations.

The users of the National Forests and the people of the eleven states which include most of the National Forests, and their representatives in Senate and House, are overwhelmingly in favor of letting the Forest Service be. There is also strong opposition in the central and eastern states.

This is no partisan question. I fought the transfer when Republican Secretaries of the Interior tried for it under Coolidge, Harding and Hoover, just as now. Under any administration it would ruin the Service.

Nothing whatever is to be gained by tearing the Forest Service out of the Department where it belongs, grew up, and has done such admirable work. No one pretends that it could do better elsewhere than where it is now.

Every Chief Forester has been against it. Every Secretary of Agriculture for the last forty years has emphasized the close relationship of forestry with agriculture. The National Forests are important parts of the agricultural equipment of America. They are cooperating forms of land use, built on the soil. To separate them would deeply injure both.

As the President himself said last December, "the forest problem is part of the broad problem of modern agriculture." Forest conservation is an indispensable part of agricultural conservation. Trees are an important farm crop. They help sustain farm enterprises, lessen erosion and floods, serve irrigation, and contribute to livestock pasturage.

The Forest Service is in close, constant, and necessary cooperation with more than half of the other organizations in the Department of Agriculture, such as the Soil Conservation Service, the Agricultural Adjustment Administration, the Farm Security Administration, Agricultural Economics.

All but an insignificant minority of conservationists oppose taking the National Forests or the Forest Service (in which the conservation policy originated) out of its present location. This move would amount to a most destructive attack on the national conservation policy.

The Interior Department is not fitted to handle the National Forests. Its chief function with respect to public lands, under the laws of Congress, is to pass them into private hands. The Interior Department centralizes its work in Washington. The Agricultural Department decentralizes. Centralization would cripple it.

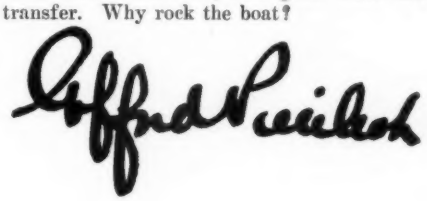
The National Forests are handled for production from the soil. The National Parks are not. That the Parks are in the Interior Department is no reason whatever why the National Forests should be there also.

Because Theodore Roosevelt recognized that the Interior Department's handling of the National Forests was a public scandal, he secured their transfer to the Department of Agriculture, where their administration has become a model of clean, competent, publicly approved efficiency.

The Interior Department has no claim whatever upon the National Forests. Ambition for power is no good reason for upsetting a lay-out that works superbly where it is.

The transfer would seriously disable the Forest Service, cut off essential cooperation with other bureaus, injure the users of the National Forests, and hurt and affront the farm interests of America.

As a matter of fact, every reason of morale, cooperation, natural relations, tradition, and good work are against the transfer. Why rock the boat?



FLOWERING DOGWOOD

***Cornus florida*, Linnaeus**

By G. H. COLLINGWOOD

KNOWN best for its showy blossoms, the small, irregular crown of slender spreading branches, the brilliant scarlet autumn foliage, and the highly specialized commercial uses of its wood, combine to make flowering dogwood a tree to be remembered. It seldom grows more than forty feet tall, and its short, irregular trunk is usually limited to a diameter of eight inches but occasionally reaches eighteen inches. This slow growing tree usually occupies the margins or the understory beneath open forest growth, and rarely approaches the conditions of a pure stand. It prefers rich well drained soils in coves or along the banks of streams from central Florida to eastern Texas and northward throughout the Mississippi Valley and the southern Appalachians to southern Wisconsin and Michigan, lower Ontario, central New York, and southern Maine. It is also found on the uplands of northern Mexico.

Devereux Butcher

A tracery of outreaching small twigs and branches characterizes dogwood in winter

An opposite branching tree, the bright green simple leaves of flowering dogwood are ovate to elliptical and sharply pointed. They are three to six inches long, two to three inches wide, with prominent mid-ribs and five or six primary veins curving parallel with the contour of the margin. The under surface is light colored and sometimes almost white. In the autumn the upper leaf surface turns bright scarlet.

Large white, pinkish, or rarely rose red blooms appear in late April, May, or early June shortly before or with the unfolding of the first green leaves. The true flowers are inconspicuous, yellow-green, and perfect—forming a dense cluster in the center of what is usually mistaken for the blossom. What appear to be four large petals with deeply notched tips are actually bracts or forms of leaves.

Flowering dogwood gets its name from the profusion of spring flowers, and for the same reason bears the Latin name *florida*. *Cornus* is derived from the Latin word for horn, and refers to the hard, tough wood. *Cornus florida* is the most important of some forty or fifty species of shrubs and small trees of which seventeen are native in North America.

The fruits are often in clusters, each one being

Devereux Butcher

The irregularly rounded crown of bright green foliage is seldom taller than forty feet

small, egg shaped and scarlet with a single hard seed. They ripen in October and are only a little less showy than the blossom.

In winter the red terminal buds are like flattened cones and are generally downy near the point. The flower buds are turnip shaped about a quarter of an inch long and broad. They are always terminal and frequently very numerous. The smooth, slender twigs are yellowish green or bright red, often covered with tiny, closely appressed gray hairs, and are bitter to the taste.

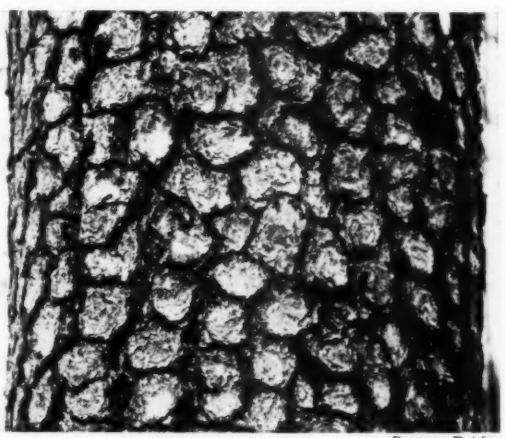
The dark red-brown to almost black bark is closely ridged and broken into four sided or rounded scales after the manner of alligator hide. It is about an eighth to a quarter inch thick and with the root bark has been used as the source of a bitter element for the treatment of fevers. The Indians also derived a form of scarlet from it for dying their blankets, feathers and belts.

Devereux Butcher

Four large, showy, deeply notched bracts surround the cluster of inconspicuous perfect flowers

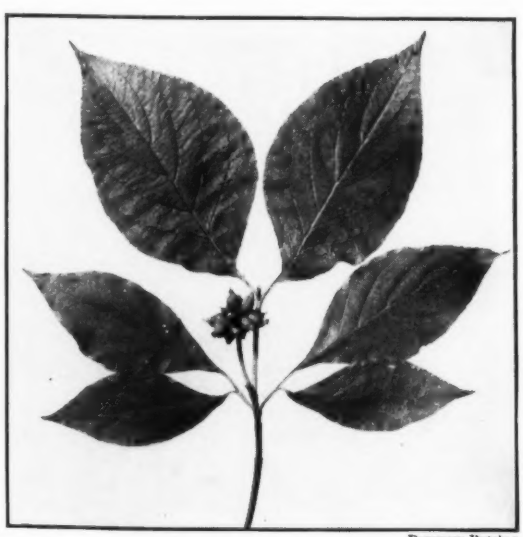
The relatively small portion of reddish-brown to light chocolate colored heartwood is surrounded by a broad area of pinkish sapwood. Its fine, uniform texture with narrow annual growth rings gives a firm, stiff wood which weighs about fifty-one pounds to the cubic foot when air dry. Probably ninety per cent of all dogwood cut for commercial purposes is used in the manufacture of shuttles for textile weaving, because the hard, close-textured, smooth wood has little wearing effect upon the thread. It is also used for spool and bobbin heads, small pulleys, skewers, golf club heads, mallet heads, and jewelers' blocks.

Dogwood reproduces from seed, which are borne nearly every year. It will also sprout from the root collar to form coppice growth, and may be successfully budded or grafted. Many birds feed on the seed.



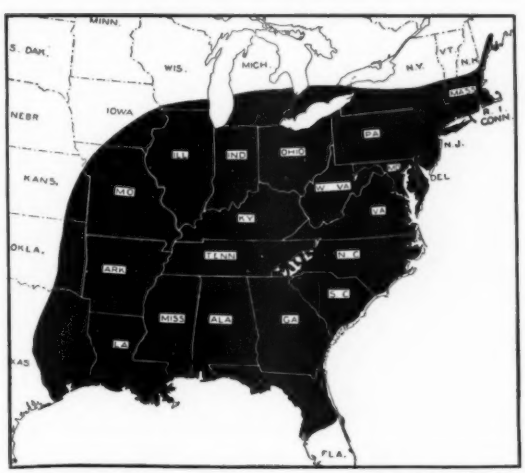
Devereux Butcher

Deeply ridged and broken, the bark resembles alligator hide



Devereux Butcher

The pointed ovate leaves are opposite one another, and the fruit cluster is bright scarlet



U. S. Forest Service

Natural range of Flowering Dogwood

The Forest in Our Land Economy

(*Continued from page* 105)

therefore, that one of the primary responsibilities of government is to provide for the wise use and conservation of our forest and soil resources. Without a sound land and forest policy for the nation, and sound and workable action programs, it is impossible to redeem those responsibilities.

As we know, many considerations must be weighed before a wise decision on a nation-wide forest policy can be reached. One is that almost seventy-five per cent of the land capable of producing usable forest products is in private ownership. By and large this is the most accessible and easily logged of all our forest land. It includes nearly three-fifths of all the remaining sawtimber and more than four-fifths of the growing capacity of the whole country. Privately owned forest land furnishes more than ninety-five per cent of the timber cut.

Privately owned forest land is, therefore, the major factor in deciding on a constructive forest policy for the nation. Another factor that must be kept in mind, particularly in a democracy such as ours, is that all forest land has broad public values and confers vital public benefits. These public interests must be protected, and so, too, must those of private owners.

It seems to me that the essentials of a sound and equitable forest policy for the nation might be briefed something like this:

First: The fundamental purpose of our forest policy must be to assure social and economic security for dependent people and communities. We may state this concept in terms of land use, trees, and industries without losing sight of the fact that our fundamental purpose is conservation for use—conservation of people as well as of land and trees. It is a striking fact that in areas of private forest land most in need of conservation are also the areas of greatest rural unemployment.

Second: Since forests help control floods, prevent erosion, and protect cultivated lands and crops, *all* forest land must be adequately protected.

Third: We should take steps to see that operations on commercial forest land, irrespective of ownership, are conducted so that the land promptly is put into new production of commercially usable timber.

Fourth: We should take steps as soon as practicable to relate output of forest industries to supplies of accessible and usable timber, and to the power of forest lands to produce it. In other words, we should achieve a balance which would permit a continuous use of timber from these lands by dependent industries and communities and people.

No nation-wide policy is worth much unless it is backed by affirmative action programs. And if they are to be successful, such forest action programs must be based on sympathetic understanding of major problems inherent in both public and private ownership and management of forest land.

Forest land in private ownership presents many problems. A basic one is to stop forest destruction. A second is to operate on a sustained-yield basis and at a profit. A third is to have privately-owned forest lands contribute their share to watershed protection. Another is to extend markets for forest products.

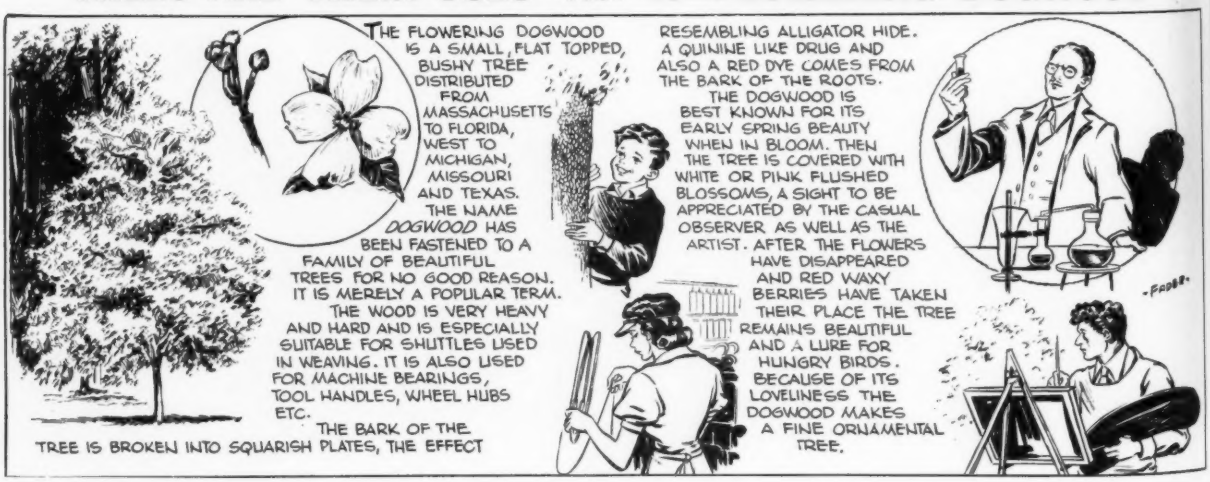
But remembering the many services forests perform we must ask ourselves—even though new markets may not be in sight—if we can afford to proceed on the theory that forests would be worth more if as a nation we had less of them. Or if, instead, we should become pioneers of plenty once more, as we did when a young and eager nation bought 983,000,000 acres from France, Spain, and Mexico.

When we made these purchases neither this land nor its resources were needed. Many people thought acquisition of such large surpluses was unwarranted extravagance. No accounting is available to show if the government over got the purchase price back with compound, or even with simple, interest. Yet the existence of those unused and at that time actually unmarketable surplus basic resources was the foundation of our prosperity throughout the greater part of our history.

Is it not reasonable to assume that if we develop more and better forests than we now have, we may again add to the strength and security of the nation?

Fortunately, progress has already been made in holding old markets for wood and developing new ones. We have made progress, too, in protecting forests from fire, insects and diseases. We know something about operating at a profit while sustaining yield. We have had some experience in equalizing and adjusting taxation on forest properties, in de- (*Continuing on page* 142)

TREES AND THEIR USES—No. 48—FLOWERING DOGWOOD


THE FLOWERING DOGWOOD IS A SMALL, FLAT TOPPED, BUSHY TREE DISTRIBUTED FROM MASSACHUSETTS TO FLORIDA, WEST TO MICHIGAN, MISSOURI AND TEXAS. THE NAME DOGWOOD HAS BEEN FASTENED TO A FAMILY OF BEAUTIFUL TREES FOR NO GOOD REASON. IT IS MERELY A POPULAR TERM.
THE WOOD IS VERY HEAVY AND HARD AND IS ESPECIALLY SUITABLE FOR SHUTTLES USED IN WEAVING. IT IS ALSO USED FOR MACHINE BEARINGS, TOOL HANDLES, WHEEL HUBS ETC.
THE BARK OF THE TREE IS BROKEN INTO SQUARISH PLATES, THE EFFECT RESEMBLING ALLIGATOR HIDE. A QUININE LIKE DRUG AND ALSO A RED DYE COMES FROM THE BARK OF THE ROOTS.
THE DOGWOOD IS BEST KNOWN FOR ITS EARLY SPRING BEAUTY WHEN IN BLOOM. THEN THE TREE IS COVERED WITH WHITE OR PINK FLUSHED BLOSSOMS, A SIGHT TO BE APPRECIATED BY THE CASUAL OBSERVER AS WELL AS THE ARTIST. AFTER THE FLOWERS HAVE DISAPPEARED AND RED WAXY BERRIES HAVE TAKEN THEIR PLACE THE TREE REMAINS BEAUTIFUL AND A LURE FOR HUNGRY BIRDS. BECAUSE OF ITS LOVELINESS THE DOGWOOD MAKES A FINE ORNAMENTAL TREE.
-FABER-

THE CAJEPUT MAKES GOOD

By JOHN C. GIFFORD

Leaves and woody capsules of the cajeput—each of which contains hundreds of tiny seeds

"THE cajeput is full of promise for the low, moist regions of the southernmost part of Florida. Like the Australian pine, it withstands saltwater overflow. Its growth along the shore of Biscayne Bay, at Miami, has been so rapid that its adaptability cannot be questioned."

This first mention of the cajeput, *Melaleuca leucadendron*, as growing in America was made by this writer in 1910 in an article written for AMERICAN FORESTRY, the forerunner of AMERICAN FORESTS. I had received seeds of the cajeput in a letter from Sydney, Australia, in 1906, had planted them and, four years later when I wrote the article, they were from twelve to eighteen feet in height and blooming profusely, yielding an abundance of seed. "The flowers," I stated then, "are at times covered with honey bees. It is, therefore, probably a great honey-yielder."

This same tree was introduced a few years later on the west coast of Florida by A. H. Andrews, of Estero. Since that time it has naturally spread and should now be classed as a naturalized species. In fact, it has become one of the most popular trees for shade and ornamentation at Miami Beach.

The leaves of the cajeput yield a valuable oil. The wood is heavy, hard, durable and light brown in color. The profuse masses of white flowers yield an abundance of honey. The bark is thick, punky and excellent for insulation purposes. What recommends it to many is the beauty of its straight white stems and delicate foliage. It grows with great rapidity and produces, while very young, very small seeds in hard, woody capsules about the size of small peas. Because of the thickness of its corky bark, it is not destroyed by fire. It is a natural swamp tree in both fresh and brackish water. It withstands strong winds. From a silvicultural standpoint it has few, if any, equals in the plant world.

At first I experienced some difficulty trying to germinate the little seeds in soil in the usual way. Little did I suspect then that all I needed to do was to scatter them over the water and mud of the swamps. Nature does the rest. Nor did I suspect that in time it would actually spread into the wild cypress swamps and hold its own against native trees. Little did I realize that when I planted the first trees at Davie, not far from Fort Lauderdale, that this tree would in time naturally spread throughout the swamplands of south Florida. It is now being introduced in the Bahamas where it will find a congenial

W. M. Buswell

Cajeput invading the wet savanna—seed naturally sown and spreading rapidly in spite of fire and occasional flooding

Matlack Studio

Now rating classification as a naturalized species, this is one of the old cajeputs of Australia, planted in Florida in 1906

home around brackish lakes or in deposits of muck.

These trees will aid in the process of drainage and thus reduce mosquitoes in places where other trees will not thrive. It is referred to in some Australian accounts as the anti-malarial tree. If there is no malaria where it grows in its native land there are probably no mosquitoes. If it repels mosquitoes by its odor or by drainage of the soil it would pay to plant it everywhere for that purpose alone.

The word "cajeput" comes from a Malay word meaning "white tree," for its bark is usually very white and papery, something like the northern birch. The long withes of this tree, somewhat similar to the olive, are excellent for garlands. The leaves have a fragrant odor because of the oil which they contain, similar to the eucalyptus and camphor.

Cajeput oil is distilled from the leaves. It is a slight irritant externally, but less so than turpentine. It gives a sense of warmth internally with accelerated pulse. It is used in flatulent colic, dropsy, hysteria, cutaneous disorders and toothache.

No one can predict what will happen if he drops a seed from a foreign land in a new environment. If it happens to be a weed he may regret it, but if it is an ornamental and useful tree he has done well for himself and posterity, especially if, as in this case, it meets with popular approval. In a few years, if fire does not completely destroy the soil of the Everglades, the cajeput may become a normal and welcome part of our new southern landscape.

The Lumber Industry Presents Its Program

THE LUMBER and timber products industries of the nation submitted their program to the Joint Congressional Committee on Forestry late in January, during hearings held at Washington, D. C. G. F. Jewett, chairman of the Conservation Committee of the National Lumber Manufacturers Association, Dr. Wilson Compton, secretary-manager, and John B. Woods, forester for the Association, serving as spokesmen, not only reviewed the conservation principles under which the industries are operating, but called for specific congressional and federal aids and encouragements to further them.

Under its forestry program, these leaders revealed, the forest industry, employing more than a million workers, is changing from a migratory and transient to a permanent and self-perpetuating industry which will become a branch of American agriculture, with forest ownership, industry and distribution of products on a basis comparable to the harvesting and marketing of farm products. Already, it was pointed out, selective logging methods have received great impetus in forest areas and have placed millions of acres of forest lands on a permanently productive basis. It was stated that eighty-three per cent of the commercially owned forest lands of the country are in a productive condition. Of these, twenty per cent are already under some form of direct, scientific forest management.

That the nation has an abundance of standing timber and a rate of timber growth which, except for the depredations of fire, insects and disease, would balance consumption, was brought out by the spokesmen. Therefore, they stated, the great problem in this natural resource is one of management and protection. Industry is concerned at the present time, it was said, not with scarcities, but with the problem of disposing of surpluses of forest products.

In outlining industry's program to the Committee, Dr. Compton declared that additional federal aid is needed in forest research and production, in developing markets for forest products, and in meeting the problems of taxation and ownership. In the field of research, he asked for early completion of the forest survey, for more findings directed toward the practice of forestry and sustained yield management on private forest lands, and expansion of domestic and foreign markets for forest products.

In forest protection, he recommended that the Clarke-McNary Act be amended to extend to $9,000,000 the authorization of annual appropriation for forest fire protection, and to $1,000,000 for protection of forests from insects and tree diseases. He also asked that the system of farm benefits under the Agricultural Adjustment and Soil Conservation Acts be so modified that owners of farm woodlands, as a condition of eligibility to benefit payments for improved forest practices, be required to maintain reasonable precautions against forest fires. He stated that forest land owners should be given opportunity to participate with public agencies in emergency relief employment in the establishment of permanent systems and facilities for forest protection, fire suppression and insect and disease control. To this end, he recommended amending the pending Forest Restoration Bill to provide for appropriate state administration of forest lands leased under its provisions as is now provided in the Fulmer State Forest Acquisition Act.

As to markets for forest products, Dr. Compton suggested that national policy, as expressed in legislation or in actions of administrative agencies of government, should assume for the maintenance and extension of domestic and foreign markets for American forest products the same kind and extent of responsibility as it assumes with respect to the products of agriculture.

Modification of federal taxation to encourage timber cropping or partial cutting of timber and timber growing on private lands, was also advocated as was authorization by federal law of systematic annual contributions to the states in lieu of taxes on forest lands owned by the federal government. He asked provision under the Clarke-McNary Act of continuing facilities for assisting the states toward a gradual adoption of systems of deferred, or yield taxation, in part or whole in place of the annual property tax.

As to forest land ownership, he stated that national policy should encourage maximum retention of forest land in private, tax-paying ownership, and public ownership only of those lands which private ownership cannot keep permanently productive. Public acquisition, he said, so far as administration facilities will permit, should be by the states, otherwise by the federal government. To facilitate the gradual acquisition of such lands by the States, adequate appropriations under the authorization of the Fulmer State Forest Acquisition Act should be provided.

On the subject of public regulation of forest lands, Dr. Compton said: "Industry believes in the principle of cooperation as incorporated in the Clarke-McNary Act—cooperation between the federal government, the states and the forest owners and forest industries. We long ago have accepted, and in many states are progressively utilizing, the principle of regulation. Good forestry is a local matter. We think that such extensions of regulation as from time to time may be desirable should be local regulations administered under state law. At the same time the federal government in its efforts to encourage, facilitate and support good forestry practice in any state will, of course, continue to have as it now has under the Clarke-McNary Act, the means of assuring wise and productive use of such additional funds as, in cooperation with the states, it chooses to invest in the nationwide promotion of forest conservation, the maintenance of forest employments, and the greater security of forest-dependent communities."

Mr. Woods, speaking on the broad forestry phases of the inquiry, outlined for the Committee the industry's advance in selective logging and sustained yield management during the past twenty years. Referring to a 1939 survey by the United States Forest Service, he said it revealed that eighty per cent of the privately owned commercial forest lands of the country were in productive condition, "meaning that they are growing trees and not lying idle or barren." This percentage, he pointed out, holds uniformly upon industrially owned lands and farm woodlands. Furthermore, it was found that twenty per cent of such lands are under some form of scientific management.

(*The report of the United States Forest Service before the Joint Congressional Committee on Forestry was made on February 16, too late to be reviewed in this number. It will be reported in the April issue of* AMERICAN FORESTS.)

McEntee Named Head of CCC

James J. McEntee, executive assistant director of the Civilian Conservation Corps, on February 15 was nominated by President Roosevelt to become its director, succeeding the late Robert Fechner. At the time of going to press, no action had been taken by the Senate in confirming the nomination.

A native of New Jersey, Mr. McEntee, prior to his appointment to the CCC in 1933, was for twenty years a representative of the International Association of Machinists in industrial relations work. In this work he was associated with Mr. Fechner. During that period he was influential in the settlement of labor disputes, notably the newsprint strikes in plants throughout the United States and Canada in 1922.

He was also active in labor railway negotiations in all sections of the country,

James J. McEntee

and a constant worker for the eight-hour movement for shipyard employees. He has appeared before many state legislatures, including New Jersey and New York, in connection with workmen's compensation laws, and lectured on labor relations before many groups. While representing the International Association of Machinists his work has taken him into practically every state in the union.

During the World War he was appointed by President Wilson as a member of the New York Arbitration Board, a commission of three, representing the government, industry and labor. This board was formed to adjust disputes as to hours and wages in munitions and war-supply manufacturing plants in the New York District.

A close business and personal associate of Mr. Fechner, he was appointed assistant director of the CCC in April, 1933. He served as acting director during Mr. Fechner's long illness. Since Mr. Fechner's death on December 31, 1939, Mr. McEntee has been acting director.

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The MAYFLOWER

WASHINGTON, D. C.

R. L. Pollio, Manager

TRANSFER OF FOREST SERVICE AGAIN THREATENS

Another congressional fight over the long-standing issue of whether the United States Forest Service should remain in the Department of Agriculture or be transferred to the Interior Department has been smouldering like a restive volcano in Washington for the past several weeks. Tension has been near the breaking point, following a news leak on January 19 to the effect that President Roosevelt had under preparation Reorganization Order No. 3 in which the forestry transfer would be included. This was followed by a later press report of a conference which the President held on February 7 with Secretary Ickes and a number of representatives of Congress.

Reports of this conference served to confirm the belief that the President had definitely made up his mind to include transfer of the Forest Service in his third reorganization shift and that the order would be transmitted to Congress within the next few days.

The original report of the President's alleged plan was signal for individuals and organizations throughout the country, who believe that separation of forestry from agriculture would be contrary to the public interest, to importune both the President and Congress to leave the Forest Service in Agriculture where it has been for the past thirty-five years. Protests were promptly raised by the national farm and conservation organizations and many state and regional organizations that believe that forestry is an inseparable part of agriculture. The flare-up of opposition to the President's reported move apparently was so widespread that leaders in Congress became alarmed lest another reorganization fight would be precipitated and that the President's progress in reorganizing other units of the government would be jeopardized.

On February 14 the tension was eased somewhat by the President announcing at his press conference that no reorganization plans will be sent to Congress prior to March 10. Two plans are under study, one dealing with intra-department mergers and the other with bureau shifts. Coupled with this announcement, the press reported that the President has decided to shelve the forestry transfer so far as this session of Congress is concerned. His decision not to attempt the transfer is said to be due to congressional opposition to the shift on the part of many members of Congress and to the belief of congressional leaders that public opposition to the move would be so great as to divide the administration vote and probably result in the defeat of the order.

Conservation and farm interests have not forgotten that the President during the last session of Congress promised Senator Pittman of Nevada that he had no intention of transferring the Forest Service and they have had difficulty in reconciling current reports that his Reorganization Order No. 3 would include the shift. They are nevertheless holding themselves alert and are prepared, it is said, to meet the issue should it be thrown into Congress with one of the bitterest conservation fights in history.

Trail Riders Announce Plans for 1940

Eight expeditions, three of them into new wilderness areas, have been announced for the Trail Riders of the Wilderness for 1940 by The American Forestry Association. Although definite itineraries, dates and costs will not be known until late March, the following trips are being organized:

June—Great Smoky Mountains National Park, in North Carolina and Tennessee. Nine day trip from Asheville via Cataloochee Ranch. Estimated cost, $100. Same country explored in 1937, with new itinerary.

In July—Spanish Peaks Wilderness, Gallatin National Forest, Montana. Thirteen day trip from Bozeman. Estimated cost, $140. This is a country never before explored by the Trail Riders.

In July—Wind River Wilderness, Washakie National Forest, Wyoming. Fourteen day trip from Lander. Estimated cost, $150. Exploring the eastern slopes of the Continental Divide. Former trail trips into the Wind River region were on the western side.

In July—Sawtooth Wilderness, Sawtooth National Forest, Idaho. Fourteen day trip from Sun Valley. Estimated cost, $150. Same itinerary as in 1939, with slight changes.

In August—Gila Wilderness, Gila National Forest, New Mexico. Thirteen day trip from Silver City. Estimated cost, $125. Same itinerary as in 1939.

In August—Maroon Bells—Snowmass Wilderness, Holy Cross National Forest, Colorado. Fourteen day trip from Glenwood Springs. Estimated cost, $145. Same itinerary as in 1939, with sight changes.

In August—White River Wilderness, White River National Forest, Colorado. Fourteen day trip from Glenwood Springs (tentative). Estimated cost, $145. This is a country never before explored by the Trail Riders.

In August—Kings River Wilderness, Inyo, Sierra and Sequoia National Forests, and Sequoia National Park, California. Thirteen day trip from Bishop (tentative). Estimated cost, $150. New itinerary in same region explored in 1939.

Tentative reservations may be made by writing The American Forestry Association, 919 Seventeenth Street, Northwest, Washington, D. C.

FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

CUTTING below the estimates of the Bureau of the Budget, the House passed a severely pruned Agricultural Appropriation bill, H. R. 8202, on February 2, 1940, with $16,366,000 for the Forest Service as compared with the current appropriation of $20,194,466.

The bill carries only $10,000,000 for administration of the national forests. In defense of this $2,002,400 reduction below the current amount, Chairman Cannon's sub-committee on agricultural appropriations recalled that in 1930 the national forest area comprised 160,655,197 acres, yet only $6,703,100 was appropriated for its administration. With an area of 176,383,375 acres on June 30, 1939, the appropriation for 1940 represents an increase of approximately ninety per cent to care for an area increase of less than ten per cent. In recommending the decrease below the sum available this fiscal year, the committee expressed the opinion that the cost of custodianship of the national forests can be reduced without seriously impairing the interest of the government. The committee further stated that the Forest Service will be allowed to use discretion in allocating the appropriation to the several sub-projects without reference to any earmarking that may have been set up in the budget.

Supporting the budget estimate of $300,000 "for the completion of the federal undertaking" in the clean-up work instituted by the New England hurricane of September 21, 1938, the House made the appropriation directly to the Forest Service rather than "for financial aid to state forestry departments" as proposed by the budget. While unexpended balances of the $5,000,000 provided in the First Deficiency Act of 1939 may be used during the coming fiscal year, the bill requires the states to match all federal expenditures.

Farm Forestry

Voting $400,000 for cooperative farm forestry under the Norris-Doxey Act of May 18, 1937, the House took steps to combine all federal responsibility for farm woodlands by merging the current appropriation of $78,098 for cooperative farm forestry extension service under Section 5 of the Clarke-McNary Act, and $100,000 now appropriated for cooperative distribution of forest planting stock under Section 4 of the same act, with $300,000 now available for cooperative farm forestry work. There is added a provision that "no part of this appropriation shall be used to establish new nurseries or to acquire land for the establishment of such new nurseries."

With the appropriation for forest acquisition cut from $3,000,000 to $1,000,000, Representative Crowe, of Indiana, tried unsuccessfully to amend the bill to provide $4,000,000. Although supported by Representatives Jenkins, of Ohio; Short, of Missouri; and Pierce, of Oregon, the economy plea of Chairman Cannon, of Missouri, prevailed and the House supported the budget estimate of $1,000,000.

Research

All research items with the exception of the $250,000 to the forest survey were pruned a total of $116,966. This would reduce the Forest Products Laboratory at Madison, Wisconsin, from $664,181 to $600,000; forest management in the several regional forest experiment stations from $643,403 to $605,000, and would provide $1,975,000 for the Forest Service research program, as compared with the present sum of $2,091,966.

Forest roads and trails are designated to receive a total of $7,500,000. This is $2,500,000 below the current appropriation. Of the amount included in the bill, $3,000,000 must be spent on 114,743 miles of development roads constructed or contemplated within the national for-

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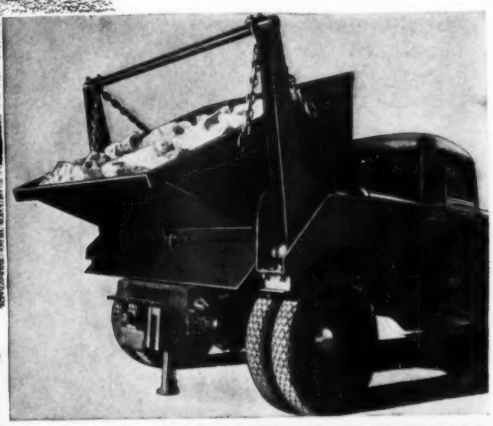

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ests, and $4,500,000 will be available for state and county highways within the national forests.

With $20,090,750 designated to the Soil Conservation Service that bureau faces a cut of $3,629,834 which is $104,378 below the budget estimate.

Dutch elm disease eradication was voted $400,000, which is $100,000 below the current appropriation. This sum, according to Chairman Cannon, was "reluctantly reported . . . . to show a desire to cooperate." Even so, the timely support of Representative Eaton, of New Jersey, was necessary to defeat an amendment proposed by Representative Boren, of Oklahoma, to eliminate the entire item.

Tree Diseases and Insects

Research in tree diseases and forest insects is promised heavy cuts, with the House voting only $200,000 as compared with a current appropriation of $265,392 for the forest pathology division of the Bureau of Plant Industry, and $200,000 rather than $253,100 for the forest insects work of the Bureau of Entomology and Plant Quarantine. That bureau's responsibility for white pine blister rust control is increased from $300,000 to $400,000, which practically sustains the budget estimate, but heavy Forest Service cuts may hamper the control program as conducted on national forests.

In connection with the several items relating to forest pests, the following statement by Chairman Cannon, as reported in the committee hearings, is significant: "When you show as much progress in the elm disease as you do in the blister rust, the committee will be glad to appropriate the money."

Agricultural appropriation hearings before Senator Russell's sub-committee were not started before the week of February 25, which indicates the bill may not be considered by the Senate until after the middle of March.

With House hearings on appropriations for the Department of the Interior, before the sub-committee, of which Representative Taylor, of Colorado, is chairman, completed on February 16, that bill may not come up for consideration by the House before March 5.

PUZZLE PICTURE NO. 3

This white oak of several trunks is not a freak of nature. It came into its present form through a deliberate act of man and for a specific purpose. Can you solve the puzzle by answering these questions? (1) What was this act, and for what purpose? (2) Why does the tree have two distinct trunks? For correct answers to these questions, turn to page 144.

Have you a "Puzzle Picture" among your photographs? If so, submit it to the "Puzzle Picture Editor," American Forests, 919 Seventeenth Street, Northwest, Washington, D. C. Postage must be enclosed for return of material submitted. Pictures selected for this series will bring their owners a year's free subscription to American Forests. So get out your album and see what you have.

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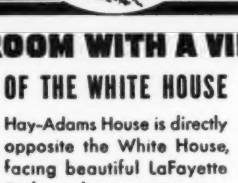

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FEDERAL NEWS AND REVIEWS

THE ANNOUNCEMENT that President Roosevelt has decided to abandon plans for the transfer of the Forest Service to the Department of the Interior, as reported in Washington newspapers on February 14, again centers interest on the appointment of a Chief Forester to succeed the late F. A. Silcox. With no statement concerning the appointment from the White House prior to the President's departure on his southern cruise, no decision is expected before March first. Meanwhile, Associate Chief Earle H. Clapp is serving as acting forester.

The President is reported to have informed his press conference on February 13 that no reorganization plans will be sent to Congress before March 15. Two plans are understood to be under study, one dealing only with intradepartmental mergers, and the other with bureau shifts between departments. Until February 13, when Senator Byrnes, of South Carolina, in company with other Senators and Representatives, was reported to have strongly advised against the move, it was generally understood that the Forest Service transfer was being studied as a part of the interdepartmental plan.

Dutch Elm Disease Eradication

Favorable progress in the campaign for eradication of the Dutch elm disease, with a reduction of over forty per cent in the number of diseased trees discovered by the scouting crews, was reported by E. G. Brewer, of Bloomfield, New Jersey, under whose direction the Bureau of Entomology and Plant Quarantine's program is being conducted. The occasion was the annual meeting of the National Conference on Dutch Elm Disease Eradication which assembled in New York City on February 14, following the call of Chairman William P. Wharton.

Figures submitted by Mr. Brewer revealed the discovery and destruction of 10,208 diseased elm trees during 1939, as compared with 18,114 in 1938. With 8,415 of these trees in New Jersey, and only 1,249 in New York, even the finding of diseased trees in Columbia County within three miles of the Massachusetts border, and a few trees near Binghamton in Broome County, New York, was not considered too discouraging. With these new trees, together with 199 reported from eastern Pennsylvania, the area now under observation has increased from 10,487 square miles to 11,500 square miles. To this the bureau contemplates extensive scouting on an additional 10,103 acres.

On the basis of evident progress in the eradication and control program, combined with the realization that sources of infection in the larger area, now under observation, must be cleaned up with all possible speed, the Conference agreed to ask Congress to appropriate $1,000,000 for the coming fiscal year. This would increase the appropriation as voted by the House from $400,000 to the Budget estimate of $500,000 and include an additional $500,000. At the same time, Congress was requested to restore the current appropriations for research in the eradication and control of forest diseases and forest insects. To this end a conference was arranged with Secretary Wallace on February 15, in which Chairman Wharton's request was supported by Harris A. Reynolds, secretary of the American Plant Pest Committee and of the Massachusetts Forest and Park Association; H. Gleason Mattoon, secretary of the Pennsylvania Forestry Association, and G. H. Collingwood, forester, The American Forestry Association. Following the conference with the Secretary the request was laid before James E. Scott, assistant to the director of the budget, preparatory to its consideration by the Senate sub-committee on agricultural appropriations.

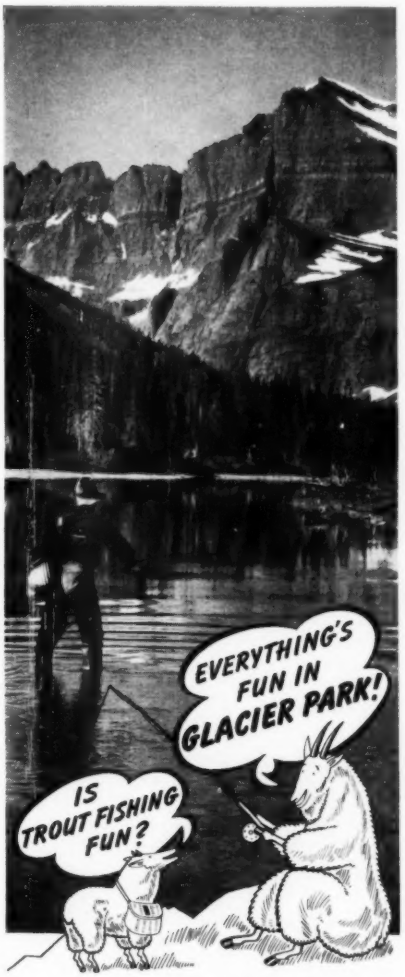
National Forest Purchases

The addition of 73,478 acres to the roadless area in the Superior National Forest in Minnesota, at a cost of $121,502, was approved by the National Forest Reservation Commission on February 14, 1940. This purchase, primarily for watershed protection and the production of timber on a sustained yield basis, includes shoreline properties on twelve lakes, and represents the major portion of forest purchases approved at the same meeting, comprising 135,765 acres. The total cost was $441,401 and the land will be added to that already acquired in twenty-eight national forests and purchase units in eighteen states.

Included in the purchases were three tracts of redwood comprising 2,100 acres, at a cost of $62,835, to make a total of 10,700 acres now in federal ownership within the northern Redwood Purchase unit in California. The stand is described as being eighty-seven per cent redwood, with trees 200 feet high and from four to twelve feet in diameter.

A new purchase unit of 92,514 acres to include portions of the Sacramento Mountains in the Lincoln National Forest, near Alamagordo, New Mexico, was approved for the prevention of soil erosion and the amelioration of floods above the Carlsbad Irrigation Project storage reservoir. Heavy stands of Douglas fir, white pine and ponderosa pine, together with grassy marshes and clear trout streams which once covered the area, were reported to the Commission as having been destroyed by logging, burning, heavy grazing and farming. While nearly two-thirds of the area is under national forest administration, about 33,000 acres are available for purchase.

Scattered purchases in sixteen other states were also approved.



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The Coronado Cuarto Centennial

will be celebrated in New Mexico this year with fiestas, ceremonials and rodeos throughout the state.

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AROUND THE STATES

Preservation of the Mill Creek redwoods near Crescent City, Del Norte County, California, one of the great redwood forests of the world, was assured when the California State Park Commission on December 5 acquired title to 6,772 acres from the Del Norte Company, Ltd. The purchase price was $80,000, obtained through contributions by the Save-the-Redwoods League from individuals in many parts of the country.

Together with adjoining state holdings in Hiouchi Park, the Mill Creek Redwoods State Park now comprises approximately 7,000 acres. An additional 2,518 acres are subject to option agreement under which, if state funds and private contributions become available, it is planned to make purchases over the next ten-year period. The combined purchase and option represents a total price of approximately $550,000 for 9,290 acres.

The Mill Creek redwoods are located on the Redwood Highway five miles northeast of Crescent City.

Wisconsin's Bird Record

An all-time record in game bird production has been announced by Wisconsin. In 1939, the state distributed from its experimental game and fur farm at Poynette more than 250,000 upland game birds. This is an increase of 58,000 over 1938. Last year's record distribution included pheasants, chukar, Hungarian and valley partridges, and wild turkeys.

In addition to game birds, the experimental farm produced for liberation more than 1,000 gray, black and cross raccoon, and thirty-three black, cross and red foxes.

Of interest, also, was the announcement that 70,000 people from forty-five states and eleven foreign countries visited the farm in 1939.

While Wisconsin was establishing a record in game bird production, Indiana announced a new record in fish production. Nearly 12,000,000 game fish were produced in the ponds of state conservation clubs during 1939 and planted in lakes and streams by the Division of Fish and Game of the State Department of Conservation. This is an increase of 4,500,000 over game fish production in 1938. The number of clubs operating hatchery ponds also increased in 1939. Clubs numbered 220, operating 516 ponds, compared with 198 clubs in 1938, operating 450 ponds.

New Hampshire's Program

A preliminary statement of a program designed to plot a course for New Hampshire forestry interests, disturbed by the New England hurricane of several years ago, has been issued by the Sub-Committee on Forestry and Lumbering of the Governor's Disaster Emergency Committee.

Briefly, the program calls for the enlargement and strengthening of the State Forestry Department; minimum requirements for cutting on designated private forest lands; modification of timber tax.

Specifically, the program calls for a system of district foresters to replace the present system of district fire wardens. Closely allied with the foresters would be local boards composed of citizens interested in forest conservation and familiar with foods problems. The duty of these boards would be to make recommendations to the State Forestry Commission. To make this system more effective, it was recommended that forest lands of the state be studied and classified to determine their best management and use.

Certain modifications in the taxation of designated forest lands were advocated by the Committee. Such lands would be assessed "at their true value as land without addition on account of the growing wood and timber thereon. At the time of cutting a tax might be levied, based on the value of the timber before severance from the stump. This would amount to a yield tax, relieving growing timber from annually recurring tax charges."

Texas Meeting

In Texas, late in January, the forest committee of the East Texas Chamber of Commerce, meeting at Nacogdoches, urged a regional program of selective forestry, fire prevention and reforestation.

Timber resources as the basic wealth of the region was the keynote of the meeting. Necessity of making the forest industry a permanent one was stressed.

Elmore R. Torn, forestry director of the East Texas Chamber, declared that "demonstrations in selective cutting will be held throughout East Texas in cooperation with the Texas Forest Service and other agencies. Chambers of commerce in the region's timber belt will appoint active forestry committees to cooperate with state and chamber agencies.

Important March Conferences

Important conferences and meetings to be held throughout the country in March are headed by the Fifth North American Wildlife Conference to be held in Washington, D. C., March 18, 19 and 20. A week later, on March 27, the three-day annual meeting of the Southern Pine Association will get under way in New Orleans.

On March 28, 29 and 30, the 18th annual convention of the Izaak Walton League of America will be held in Chicago. And among the later meetings, that of the Eighth American Scientific Congress, to be held at Washington, D. C., from May 10 to 18, is outstanding. Governments and institutions of the American Republics will participate.

SCIENCE AND EQUIPMENT

TAMPING ROLLERS AND RIPPERS

Rippers and tamping rollers are new tractor equipment items recently placed on the market by the Bucyrus-Erie Company. The Tamping Rollers are offered in single, double, or triple drum models, with 72, 96, or 112 feet per drum available in each model. All rollers have rear pull connections for working in trains, and all drums are provided with openings for ballast.

The new rippers are of two types, the rotary type and the heavy duty cable-operated type. Outstanding feature of the rotary type ripper is a rotating head, which swings the ripping standards up and back and around to ripping position again quickly.

WAX EMULSION FOR TREES

A wax emulsion containing bentonite has been developed by Dr. E. J. Miller, of the Michigan State Experiment Station. When applied to trees and shrubs, this prevents excessive evaporation. It is of especial value before or at the time of transplanting, and it also reduces winter injury on evergreens. The concentrated material is diluted and sprayed on the tree or shrubs. It is manufactured by the Dow Chemical Company.

BIG TREE MOVER

Big tree moving is now an established practice in landscaping properties and it is only natural that labor-saving equipment has been devised to keep costs lowered and generally to increase the speed and efficiency with which large specimen trees may be moved and transplanted.

Over a period of the last ten years, an efficient type of tree-moving equipment known as the Butts Tree Mover has been developed under extensive field tests. It is compact, requires less hand labor, is readily mobile, and handles trees with speed and safety.

The equipment consists of a complete unit which can be installed on any truck having a minimum of nine inches from rear spring shackles to back of cab. It is so designed that the cradle, in which rests the trunk of the tree to be moved, pivots in two directions; this factor, together with chain suspension, insures proper support for any size or shape of tree. A second cradle, adjustable both in size and in its relation to the trunk cradle, is attached to the rear of the boom, supporting and protecting the ball of earth which may be up to 10 feet in diameter. The boom rolls on its hinges and is lowered to the ground for loading.

Carried in a horizontal position with the top forward, the tree rests on saddles at each end of the boom. This latter is operated by roller chain and worm driven sprockets, which control tipping of the boom downward and a leverage, powered by the same roller chains, controls upward tipping of the boom.

FORD-FERGUSON FARM TRACTOR

The Ford Motor Company has started production of a new tractor incorporating the Ferguson System of hydraulic controls for unit implements. The manufacturer claims that it is lighter than anything now on the market and yet will outperform any competitive tractor. It embodies a revolutionary new principle of tool attachment which creates a versatile piece of machinery designed to replace the horse on the farm. Tests underway indicate that the new tractor is suitable for fire line building, and tree nursery cultivation.

IF ECONOMY IS IMPORTANT!

We want you to know about the New Galion No. 201 motor grader with its exceptional economy both in original investment and operation. With a 46 H. P. gasoline engine over rear axle, it provides a unit of intermediate weight and power with the capacity to perform operations usually considered work for pull graders.

A full range of blade adjustments in all working positions, eight-speed transmission, one-piece narrow frame, hydraulic control, wide front axle, leaning front wheels, scientific weight distribution . . . are just some of the many features you will like about this machine.

The Galion No. 201 (above) in bank-cutting position, easy with the full revolving circle assembly which provides for every blade position necessary in road building and construction work. The Galion Heavy Duty motor grader with diesel engine is shown at the right in ditching position. Let us send you engineering data.

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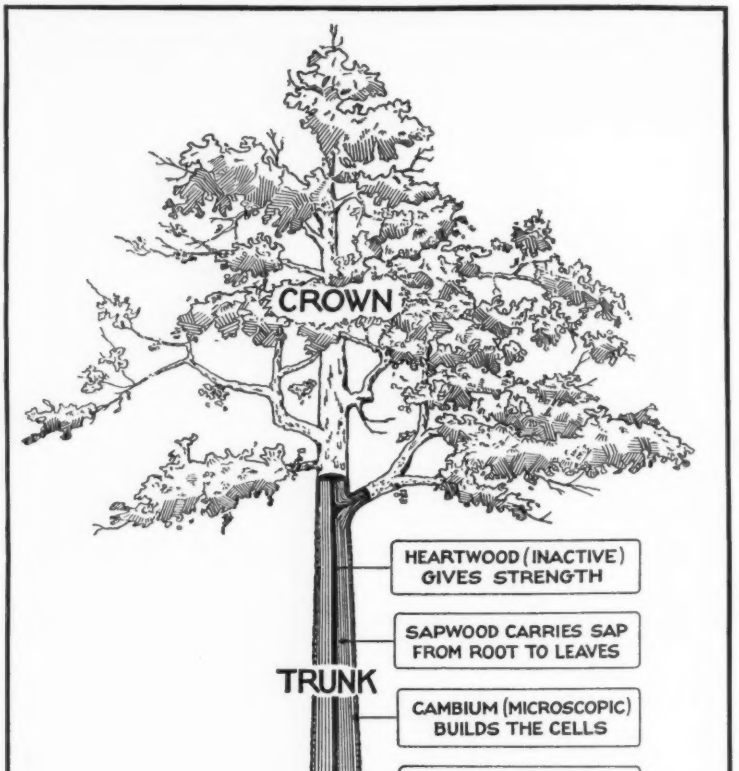
CROWN
HEARTWOOD (INACTIVE) GIVES STRENGTH
SAPWOOD CARRIES SAP FROM ROOT TO LEAVES
TRUNK
CAMBIUM (MICROSCOPIC) BUILDS THE CELLS
INNER BARK CARRIES PREPARED FOOD FROM LEAVES TO CAMBIUM LAYER
OUTER BARK PROTECTS TREE FROM INJURIES
SURFACE ROOTS
SURFACE ROOTS
ROOTS
TAPROOT
ROOT TIPS OR ROOT HAIRS TAKE UP WATER CONTAINING SMALL QUANTITY OF MINERALS IN SOLUTION

HOW A TREE GROWS

The buds, root tips, and cambium layer are the growing parts of the tree. Water containing a small quantity of minerals in solution is absorbed by the roots; carried up through the sapwood to the leaves and there combined with carbon from the air to make food. This food is carried by the inner bark to all growing parts of the tree, even down to the root-tips

YOUR SHADE TREES

PLAN YOUR PLANTING AND PLANT!

". . . The glory of trees is more than their gifts;
'Tis a beautiful wonder of life that lifts
From a wrinkled seed in an earth-bound clod,
A column, an arch in the temple of God."
—VAN DYKE.

THERE IS a keen and growing interest in tree planting,—whether for shade, scenic value, to beautify streets or lawns, or for parks and communal woodland planting. All tree planting serves a purpose, provided the planting is properly done and the trees live.

While March is the time to prune and thin as well as to spray and clean out deadwood, the general bent is toward planting—a wondering and a delicious deciding, as heads are bent over gorgeously illustrated nursery catalogues—"what *can* we afford this year?—and what will be the best thing to put in that not entirely empty corner in the ell of the house? It seems to call for a tall, plumy hemlock, with its ever-faithful green. But the handsome flowers and glossy leaves of a clump of rhododendron would bring brilliance and needed color there"—it is really a ponderous question and many factors enter into the decision. The plant or tree wholly suitable for one place, may not suit another because of varying soil, moisture-content or atmospheric conditions. And all these things must be weighed, together with personal preferences (and sometimes against them) in deciding what to plant and where.

First of all, it is well to select the very best planting stock available, within the budget, and order it from a reliable nurseryman. Do so as early as possible so as to secure the lowest prices and enable the nurseryman to ship the stock at the right time for planting. He will undoubtedly be glad to give you good and specific advice, but it is well to remember that the approach to each planting project differs from most others. Your problem may be the setting out of large trees on a sweeping lawn, or the planting of many small trees in a woodland. Again, it may involve fruit trees, shade trees, shrubbery, vines or flowers. From whatever angle, it should be approached thoughtfully and planned carefully, so that when your work is complete it will realize your mental picture.

Plans made, stock ordered and in, attention should then be given to properly preparing the soil for the reception of the trees and plants. When you are ready to plant and the hole is dug, replace the sterile, impoverished soil with rich, mellow loam. The roots of the tree, meantime, must be shielded from wind and sun, and kept moist until they are placed in the ground. This is extremely important, for even a few minutes' exposure to drying may ruin the fine, fibrous feeder roots of the tree. Before actually planting the tree, the roots should be carefully examined and any bruised ends should be cut off smoothly. It is well to coat the larger wounds with coal tar, as this will prevent

decay and stimulate the feeder roots to new growth. Fill the bottom of the hole with mellow loam so the tree may set upright at the same depth it stood in the nursery. Spread the roots out with care and work the loose soil in tightly among the fine rootlets. Add more good soil, layer by layer, firming each layer and thoroughly watering before the last portion of soil is laid. The last layer should be left loose, not packed, so it may act as a mulch to prevent the rapid evaporation of moisture. Peat moss may be mixed with the soil to keep it light and help retain moisture. The tree should be lightly trimmed, to equalize the crown demands to the loss of roots. In addition, it is sometimes desirable to stake a newly planted tree to keep it erect and prevent swaying.

The two normal seasons for planting broadleaved trees are spring and fall. It is safe to say, however, that all trees except evergreens may be planted at any time during their dormant period when the soil is capable of being worked—that is, when it is not frozen. This begins with the dropping of the foliage in the autumn and ends when the spring buds burst forth. Evergreens are usually most successfully planted in late spring or during August and September.

The selection of the kind of trees to plant is important. A spruce will not be as good for shade as an elm, but the spruce makes a splendid shelter. It is better, in the long run, to plant slow-growing oaks, elms, basswoods, and sycamores than to select quick-growing silver maples or many of the poplars. While the latter mature early, they also die earlier. Cultural requirements are, of course, a great factor in the matter of selection. It is impossible to go very comprehensively into this, for each planting project should have individual consideration and direction. The following few broad rules may help. To offer a range of choice, four or five trees or plants divided according to specific purposes, are listed. They are particularly adapted to the eastern half of the country, but many will also prosper throughout much of the west.

For city streets (where conditions for tree growth are unfavorable): Norway Maple, Pin Oak, London Plane Tree, Ginkgo.

For suburban streets: American Elm, European Linden, Red Oak, Sugar Maple.

For specimen trees on the lawn: European Beech, Birch and its weeping and cut leaf varieties, Oaks, Magnolias, and Tulip tree.

For evergreen screen: Hemlock, White Pine, Norway Spruce, Arborvitae.

For deciduous screen: Beech, Willow, Lombardy Poplar, Honey Locust.

For flowering shrubs: Azaleas, Forsythias, Weigelas, Spiraeas.

Shrubs with colored berries: Barberry, Coral Berry, Snowberry, Thornapple.

Trees that color in the fall: Sweet Gum, Flowering Dogwood, Sugar Maple, Sour Gum or Pepperidge.

Shrubs that color in the fall: Sumac, Euonymus alatus, Viburnums, American Mountain Ash. (*Continuing on page* 144)

TREE SEEDS

FOR FORESTERS
and
NURSERYMEN

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Red Pine, 4 yr. Transplants, 5 to 10 in.	15.00	Red Spruce, 3 yr. Transplants, 2 to 5 in.	15.00
Red Pine, 5 yr. twice Transplanted, 9 to 15 in.	25.00	White Spruce, 3 yr. Transplants, 2 to 4 in.	10.00
Scotch Pine, 3 yr. Transplants, 3 to 6 in.	15.00	White Spruce, 4 yr. Transplants, 4 to 6 in.	15.00
Engelmann Spruce, 4 yr. Transplants, 1 to 3 in.	10.00	White Spruce, 5 yr. twice Transplanted, 8 to 12 in.	20.00
Engelmann Spruce, 4 yr. Transplants, 3 to 5 in.	15.00	Black Hill Spruce, 4 yr. Transplants, 2 to 4 in.	15.00

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COLOR PHOTOGRAPHY FOR THE AMATEUR, by Keith Henney. Published by Whittlesey House, McGraw-Hill Book Company, Inc., New York. 281 pages. Illustrated. Price $3.50.

A practical book, telling how to make transparencies in color with Kodachrome, Dufaycolor, Finlay, and Agfa color materials; how to make prints on paper by the Chromatone, Carbo, Wash-Off Relief, and Colorstill processes; how to make separation negatives; how to make prints from Kodachrome and Dufaycolor. The apparatus necessary for each process is described, giving brand names; estimates are made of the cost; hints and details of operation are picked up from other color workers and from manufacturers. A "must" book for the color photographer.

THE PRIVATE LIVES OF BIRDS, by Dr. Henry Smith Williams. Published by Robert M. McBride & Company, New York City. 270 pages, illustrated. Price $3.00.

Written by a physician and scientist, whose lifelong avocation has been that of a naturalist, this book deals most interestingly with the mentality and activities of birds, both native and migratory. The author stresses the astonishing number of human traits displayed by birds — their love of home and sense of property values; their fashions, their speech; that they have imagination and can reason and that, on occasion, they exhibit the basic emotions of love, hate, anger and jealousy hitherto ascribed by man to man alone! It is an unusual book, easy to read, and the beautiful black and white and full color illustrations really embellish the interesting text.

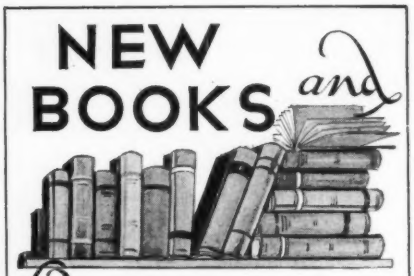
MEN AND TREES, by Joseph Gaer. Published by Harcourt, Brace and Company, 383 Madison Avenue, New York, N. Y. 118 pages. Illustrated. Text Edition $1.00.

Forest conservation in terms of federal leadership, with particular reference to the U. S. Forest Service, its history and achievements, is the theme of "Men and Trees." Simple facts and established views are presented in a readable form, supplemented by numerous photographs and charts. It provides a basis for collateral reading in connection with grade school courses in conservation.

THE BIRD LIFE OF LOUISIANA, edited by Dr. Harry Church Oberholser. Published by the Department of Conservation, New Orleans, Louisiana. Illustrated. 834 pages. Paper bound, $1.00 per copy.

This attractively printed and abundantly illustrated report covers 430 species and sub-species of birds familiar to the region in and adjacent to Louisiana. It represents a thorough investigation of birds inhabiting this State and contributes much to the subject of ornithology. The bulletin has been prepared for the popular reader and offers a splendid educational opportunity to those interested in the study of North American birds.

NEW BOOKS and OTHER PUBLICATIONS



A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

IRON BREW, by Stewart H. Holbrook. Published by the MacMillan Company, New York City. 352 pages. Price $2.50.

"It is a thundering story, the saga of iron and steel in America"—and no words can better describe this book, tracing the making of iron and steel, from the pen of the man who wrote "Holy Old Mackinaw" —the saga of the lumber industry. Vividly described is the birth of steel,—the fiery metal pouring forth from the maw of a Bessemer converter. The steel industry, furiously goaded by the rushing drive that controls the refinement and production of the finest metal, is drawn in all its color. As well is pictured the romance of the mining towns, the saloons and gambling houses, the superstitions and disasters of the mines, the co-mingling of races—all the factors entering into the moods of America's most tremendous industry. A book to interest Americans from cover to cover.

WORKING WITH NATURE, by Eleanor King and Wellmer Pessels. Published by Harper & Brothers, New York City. 182 pages, with 60 offset illustrations. Price $1.20.

This book has delightfully accomplished its purpose, in capturing the reader's imagination by the presentation of familiar, everyday creatures in a new light. In discussing wildlife conservation, it points out that we must, as good conservationists, see that the true interrelationships between—not only animals, but between plants and animals and the insect world are the basic foundations of the balance of nature. And the attention of the pupil is drawn to homely examples of natural life found near at hand, — in his own dooryard and the neighborhood fields and woodlots. From intensive study of these, and how nature works with them, he will be eager to branch out into the larger world of the deer, the beaver, the buffalo and their brothers.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

A Survey of Research in Forest Land Ownership. Report of a special committee on research in forest economics. Published by the Social Science Research Council, 230 Park Avenue, New York, N. Y.

Conservation in the Rural School, prepared by the Conservation Society of York County, Inc., York, Pa.

Forest Improvement Cuttings in Canada, by G. A. Mulloy, Silvicultural Note No. 56 and *Thinning and Pruning Experiment Red Pine Plantation, Rockland, Ontario,* by J. W. B. Sisam, Silvicultural Research Note No. 57, both published by the Lands, Parks and Forest Branch of the Dominion Forest Service, at Ottawa, Canada.

Products of American Forests, by J. Alfred Hall and T. J. Mosley of the Forest Products Laboratory, U. S. Dept. of Agr., Supt. of Docs., Washington, D. C. Price 20 cents.

Annual Report of the Conservation Commission of West Virginia, for the year 1938-1939.

The Glued Laminated Wooden Arch, by T. R. C. Wilson. Tech Bull. No. 691. For. Serv., U. S. Dept. of Agr. Supt. of Docs., Wash., D. C. Price 20 cents.

Forest Management in New Jersey, by E. B. Moore, Assistant Forester, Department of Conservation and Development. Trenton, N. J.

Pine Establishment, by T. N. Stoate, published by the Conservator of Forests, of Western Australia. Forests Department Bulletin No. 52, Perth, W. Australia.

The Better Utilization of Home-Grown Timber, by S. E. Wilson. Reprinted from The Quarterly Journal of Forestry and published by The Red Lion Press, Ltd., 154 Fleet Street, E.C. 4, London, England.

Evergreens, by Charles W. Barr. Extension Bulletin 178 of the Michigan State College, Lansing, Michigan.

Guide to the Appalachian Trail in New England — 2nd edition. One of a series of five guidebooks furnishing detailed description for the entire Appalachian Trail. 260 pages, 6 maps. Published by The Appalachian Trail Conference, 901 Union Trust Building, Washington, D. C., $1.25, postpaid.

Wildlife and Forestry Code of the State of Missouri, published by the Conservation Commission of the State of Missouri, Jefferson City, Missouri.

Coconino National Forest, Arizona. Published by the Forest Service of the U. S. Dept. of Agr., Southwestern Region, Albuquerque, New Mexico, or Supervisor, Flagstaff, Arizona.

Fourth Annual Report, Chicago Park District, 425 East 14th Street, Burnham Park, Chicago.

The Mahogany Book, by George N. Lamb. Published by The Mahogany Association, 75 East Wacker Drive, Chicago, Illinois.

New Farm Homes

(*Continued from page* 117)

ings. This is part of the problem, and a rehousing program can be the means of supplying much needed training in building maintenance.

Another advantage of a self-help program is its flexibility. A minimum standard based on some such relation as one room for a person cannot hold for different sized families and the same house value per family. But with the use of home labor and materials, the size of house is limited only by the labor the family is willing to put into it.

Use of farm resources in materials includes stone, gravel and clay products, but by and large, farm construction is wood construction and a rehousing of 2,000,000 farm families in the lowest income group has a direct relation to farm forestry. The forester has been pressed to find a profitable market for products of the farm forest as an incentive to better farm forest management. The answer would seem to be a rehabilitation program in which low income farm families become prospects for new buildings, utilizing farm forest materials. Twenty thousand board feet of lumber, or its equivalent in poles and logs, for each farm is a conservative estimate of the material required for minimum standards. Applied to 2,000,000 farms, the total would be 40,000,000,000 board feet. Assume the program extended over a period of ten years, and the annual requirement is 4,000,000,000 board feet compared with a normal consumption on these farms of less than a billion feet. There would also be the stimulating effect on construction on farms not specifically within the low-income classification, perhaps another 2,000,000 houses needing repair or replacement.

Conservation Spotlights Annual Meeting

(*Continued from page* 120)

cellulose from cotton. One of the recognized authorities on organic chemistry in the United States has stated there is no chemical reason why any process today using cellulose could not obtain that cellulose from wood. The question of source is not a chemical question but an economic question. When sufficient research work is done to enable you to produce high grade cellulose at a cost below that of your competition, the market will undoubtedly be yours. Research is the key."

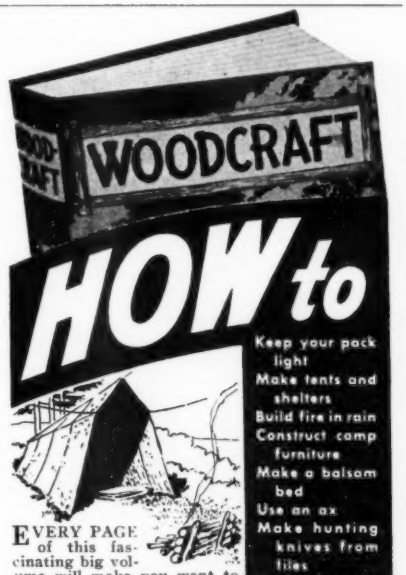
Mr. Livingston said that forest industry is at the bottom of the ladder as regards research and that in this age of chemical wonders and advancement no industry can hope to depend upon experience alone. His own company, he said, spends about $7,000,000 annually on research and that while this may seem to be a large sum results have justified its expenditure in that approximately forty per cent of the company's present sales revenue is derived from products which are entirely new or were very materially improved through research during the past ten years. The company's experience has been that it requires an average of about six years from the time a research project starts until a resulting product is saleable.

Citing the fact that the chemical industry as a whole spends almost two per cent of its income on chemical research and has forged ahead despite the depression, and that all manufacturing industry spends one-half of one per cent on research, Mr. Livingston said that the logging and lumber industry stands out in unfavorable contrast in that its entire expenditure for research, the bulk of which is provided by governmental appropriations, is less than one-tenth of one per cent of its income. To meet the industrial average forest industry must increase its expenditures for research five times and to be on a par with the chemical industries an increase of twenty times would be called for. As a chemical raw material, the utilization of wood, Mr. Livingston said, is only partially explored and there is no reason why with more adequate support of research, new products and new uses should not in the future provide as large a source of income as lumber does today.

The concluding speaker of this session was H. M. Seaman, chairman of the conservation committee of the Southern Pine Association. Speaking on "Business Aspects of Forest Management in the South," Mr. Seaman described the growing trend toward permanent forest management by southern pine land owners and the important business and management problems which they must solve.

Friday afternoon's field trip enabled those attending the meeting to visit historic points around Biloxi and along the Gulf Coast. It was concluded with a visit to the paper plant of the Southern Kraft Corporation at Moss Point. A feature of this trip was a visit to Magnolia State Park, where Mississippi's Arbor Day was observed by the planting of a magnolia tree in honor of the late Robert Fechner, Director of the Civilian Conservation Corps. The ceremony was in charge of Mrs. G. H. Reeves, who represented the Mississippi Federation of Women's Clubs. The spade of The American Forestry Association, which was used in planting the Mother's Tree in the White House grounds at Washington in 1924 and has since been used in similar plantings all over the country, was used on this occasion. Fred Morrell, CCC Coordinator of the Department of Agriculture, represented the Civilian Conservation Corps.

The final session of the meeting on Saturday morning, February 3, was presided over by Julian McGowin of Chapman, Alabama. Speakers included W. M. Oettmeier, manager of the Superior



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Build fire in rain
Construct camp furniture
Make a balsam bed
Use an ax
Make hunting knives from files
Make a stove from a tin can
Barbecue meat
Waterproof matches
Cook in vessels of bark
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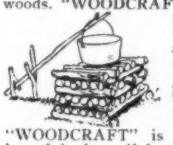

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Pine Products Company of Fargo, Georgia; Jay Ward, in charge of Naval Stores Conservation for the United States Forest Service; E. O. Siecke, State Forester of Texas; and H. A. Smith, State Forester of South Carolina. Speaking on the subject "Can Private Forestry Pay Its Way in the South," Mr. Oettmeier said that enough information is now available to say that private forestry in the South "not only can pay its way but actually is paying its way where it is applied. It is paying its way not only to the land owner of the forest but to the people in the communities surrounding these areas and its weight is felt financially in the larger cities." Of the many handicaps the most important, he said, and the one doing more to hinder the practice of private forestry from becoming the South's most important industry is uncontrolled forest fire.

The discussions of Mr. Siecke and Mr. Smith formed a highly constructive contribution to the meeting. Never before, it is believed, have responsibilities and difficulties of state forestry organizations been so ably presented. Pointing out that state forestry organizations have to deal with seventy-five per cent of the forest problems of the nation, Mr. Smith declared that although most of them had been conceived in doubt and hesitancy and born in poverty and controversy, they nevertheless "have carried on the battle for conservation on privately owned lands against handicaps of tradition, ignorance and policy with which few people are familiar. They have had to fight for every penny they ever earned. • • • State foresters have bumped their heads against the stone wall of poverty for so many years that today many are afraid to express the magnitude of the job before them."

Both speakers agreed that one of the greatest handicaps to the growth and larger service of state forestry departments has been and still is failure of the federal government to recognize the importance and magnitude of the state's field and to channel federal cooperation through their agencies. Mr. Siecke declared that the vague and uncertain status of federal cooperation in forestry has worked against the development of strong state forestry organizations by too often channeling federal cooperation through other state agencies or through federal bureaus themselves. He made a plea for federal forest laws that provide definite policy and procedure of cooperation rather than leaving it with the Secretary of Agriculture or his bureaus to decide what state agency and to what extent federal cooperation will be extended.

One of the great needs today, said Mr. Smith, is "for real federal leadership in the entire forestry program; an acceptance of that leadership by the state agencies concerned, and a recognition that more than seventy per cent of our national forestry problems today are on privately owned lands—the forgotten lands in our national conservation policy." State forest organizations, he declared, have a responsibility "to take unto themselves a new life, a broader vision, a more receptive attitude and a more progressive program." In addition to the recognition by all agencies of the magnitude of the state forestry program as represented by privately owned forest land, Mr. Smith expressed the conviction that state agencies could be greatly strengthened by (1) recognition of the fact that the practice of forestry upon privately owned forest lands is obtaining and will obtain identical results as the federal program of national forest acquisition; (2) more cooperation and participation on the part of the federal government in carrying out these programs; (3) greater recognition that in forestry and better land use an ounce of prevention is worth a pound of cure and that one acre of trees planted by a private owner who is paying taxes represents a greater victory for conservation than if the work is done by the federal government; (4) recognition that the objectives of state forestry organizations are similar to those of the national agencies and that the former be accepted as partners in the national forestry program; (5) that a real attempt be made by the federal government to focus all government expenditures for conservation work through one agency instead of several.

The field trip on Saturday afternoon which concluded the meeting was to the famous Bellingrath Gardens near Mobile where those taking the trip were the guests of Mr. Bellingrath.

Financial Statement

The American Forestry Association

BALANCE SHEET AS OF DECEMBER 31, 1939

ASSETS		LIABILITIES AND CAPITAL		
Cash	$14,610.02	Accounts Payable		$1,307.92
General Fund Investments	9,100.00	Loans from Reserve Fund		12,057.61
Accounts Receivable	2,376.71	Deferred Income		96.00
Accrued Interest Receivable	2,886.73	Reserves:		
Inventories	2,372.97	Prepaid Memberships	$26,535.41	
Deferred Charges	4,337.54	Dutch Elm Tree Disease Project	154.86	
Special Revolving Fund	9,825.63	Forest Fire Medal Project	2,546.13	
Endowment Fund (Including Real Estate)	281,694.21		$29,236.40	
Furniture and Fixtures	3,188.14	Surplus		287,694.02
TOTAL	$330,391.95	TOTAL		$330,391.95

INCOME AND EXPENSE ACCOUNT FOR YEAR ENDED DECEMBER 31, 1939

EXPENSES		INCOME	
General Administration	$24,801.65	Membership Dues	$51,620.24
American Forests Magazine	34,886.90	Advertising	13,197.70
Conservation Magazine	1,517.82	Interest	6,118.44
Membership	15,688.00	Donations	2,350.16
Forester's Office	8,280.86	Forester's Office	3,584.77
Educational Publicity	7,014.07	Miscellaneous	3,345.32
Operating Surplus	290.97	Sale of Publications	10,095.56
		Conservation Magazine	2,168.08
TOTAL	$92,480.27	TOTAL	$92,480.27

AS TRUSTEE FOR AMERICAN FOREST FIRE MEDAL PROJECT

Expense	$300.59	Receipts	$1,591.76
Total Balance this Fund to December 31, 1939			$2,546.13

Finland's Forest Soldiers

(*Continued from page* 112)

through the heavy ice. The lumberjack-soldier knows this—to his advantage.

In central and north Finland occur granite outcrops, which, with the heavy forest cover and abundance of lakes, rivers and swamps, make the terrain a difficult one for modern motorized warfare. In winter—November to May—low temperatures and heavy snows increase the obstacles. In summer the swamps and bogs and lakes are impassable.

The terrain of the eastern part of the Kola Peninsula (Soviet Russia) is much like Finland, except that its lakes are larger and not so numerous, and the country less settled, except along the Leningrad-Murmansk railroad. This rail line roughly parallels Finland's frontier.

The Finnish soldier is not a new figure in warfare. He has been fighting for many hundreds of years to defend his little country. On reaching twenty-one, no male is exempt from 350 days of military service. They are called up for later training, for periods of from forty to sixty days.

Finland's defensive forces are made up of the Army, Civil Guards, Frontier Guards, and the Coast Defense. The distinctive feature is the Civil Guards, made up of any man, gray-beard or youth, who voluntarily gives his time to military training and duty. Lumberjacks, woodsmen, foresters, farmers, towns folk—all take this training.

Along with the Civil Guards is another unique organization, the Lotta Svärds, made up entirely of women. They assume charge of the Commissariat, hospitals and nursing, and other war duties. The Lotta Svärd Association is a national defense organization with some 100,000 members. It is no pink-tea affair, no gatherings to gossip over bandage-making or fancy knitting. The Lotta Svärds are largely the service of supply of Finland.

The Frontier Guards have borne the brunt of the Red invasion. They are the advance forces, moving quietly and skilfully on skiis through the heavy forests, knowing every inch of the tricky terrain.

Every advantage of the forested terrain, the climate, a vigorous, courageous and united people, are with Finland. But against her are a rich and powerful country, overwhelming numbers, with an almost religious zeal of spreading by force its political doctrine and power over neighboring countries.

The Control of Stream Pollution

(*Continued from page* 114)

in such situations on interstate streams, to enforce appropriate measures of pollution control.

If federal enforcement proves to be essential, the quickest way to secure it is to demonstrate that in certain clearly defined circumstances the problem of pollution abatement is beyond the abilities of the states. Such demonstration in connection with the development and carrying forward of a national policy under strong leadership is the best means to secure the support of the country for federal enforcement; and no doubt a legal basis for such enforcement could be found.

In short, the adoption of the program of the National Resources Committee does not close the door to later federal action in direct enforcement, as claimed by opponents of the Administration program. On the contrary, this program prepares the way for showing whether federal enforcement is necessary, and when and how it should be applied. It is to be noted that the President himself qualifies his endorsement of the recommendations of the National Resources Committee by the words "pending further experimentation with interstate and state enforcement activities." It should be possible to draft a strong measure that would set forth clearly the principles and objectives indicated in the foregoing paragraphs.

The foregoing objectives should, in my opinion, be clearly expressed in any measure designed to carry out the Administration policy for control of water pollution. There should be a definite mandate to the new federal agency to assume strong leadership in forwarding the movement, to develop a national policy of pollution control, and to advocate specific legislation and administrative action in individual states, as well as to conduct research and public education. I would include also a provision directing the new agency to report to Congress from time to time regarding the progress of pollution control by the states and to recommend legislation for federal authority for enforcement of control measures on interstate streams if the states fail to redeem their responsibilities in the premises.

There is a trend toward increased federal participation in conservation of many natural resources, including added functions of control, direct or indirect, by the central government. In many cases I believe that the trend is based on necessity in the national welfare and that assumption of added responsibility by the federal government can in most cases be brought about without lessening the responsibilities of the states or impairing their sovereignty. If essential changes in relations of federal to state governments are made progressively and with due deliberateness, public support will be secured and the basic solidarity of the Union strengthened.

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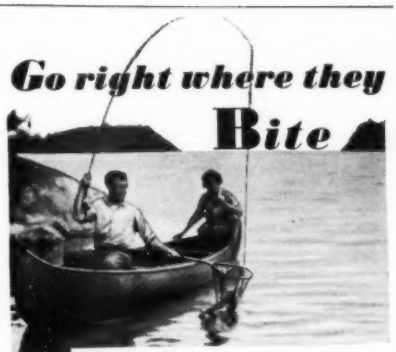

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The Forest in Our Land Economy

(*Continued from page* 126)

veloping farm-forest cooperatives and encouraging farmers to improve forest practices through benefit payments. In research we are developing basic knowledge essential to the best management of private and public forest land; and we are having some success in getting that knowledge to forest owners.

There is need, however, for more progress in solving the problems I have named and such others as public credits to forest owners; a more equitable basis for reimbursing local units of government in lieu of taxes on account of federally owned forest land; and bringing some order to the present chaotic intermingled public and private ownership pattern.

Opinions with respect to basic elements of a nation-wide forest action program will differ, and judgment will of course enter into any decision that may be made. But if it is to be successful, that action program must be broad but as simple as possible. And it must be fair; must protect private and public interests.

It seems to me there are two basic elements essential to that part of any equitable action program designed to help solve problems of forest land in private ownership. Both elements, I think, should be translated into action concurrently. The first is cooperation: joint effort and action by appropriate public agencies and private forest land owners, including, as one aspect, essential public control. The other is extension of public ownership and management of forest land.

The vital public interests and values inherent in all forest land, no matter who owns it, carry with them definite public responsibilities to extend public cooperation—including financial aid—in solving many private forest-land problems.

Public aid, extended for years, has applied to fire protection, basic research, taxation, markets, and extension teaching. It has been helpful. With it, and because of certain things some private owners have done, progress has been made.

Public aid should be continued. It should also be extended and increased. The direction in which I happen to think it should go is indicated by what I have already said about public responsibilities in relation to private forest land problems. The *extent* to which public aid should be extended will naturally be determined by private owners—by how much they do to redeem their own responsibilities. Cooperation implies, in this case, a joint effort to stop destructive forest practices and putting forest management on a substantial yield basis as soon as it is possible to do so.

It is my considered opinion that, to attain this major objective, public regulation of cutting practices on privately owned forest land is essential. This regulation might well be a joint state-federal undertaking, with the federal government retaining the right of direct action if such became essential. If properly planned and administered, I believe such regulation will protect private as well as public interests and values, and should afford effective assurance that private owners and private industries will respond effectively to public cooperation and aid.

Reasonable, planned, and coordinated extension of community, state and federal ownership and management of forest land is in my opinion also essential to successful solution of many forest problems. Just how much additional forest land should come into public ownership depends partly, it seems to me, on how rapidly progress toward conservational management is made on privately-owned lands.

Extension of public ownership should help unscramble existing ownership patterns which of themselves make it difficult for either private or public owners to carry on sustained yield management. It should also make it possible to put under management many forest properties which, because of heavy investments and carrying charges, for example, apparently cannot be put on sustained yield management under present conditions.

Action programs designed to help solve problems of forest land in private ownership, must, of course, be accompanied by programs that provide for protecting, developing, and using land and its resources now in public ownership, and those which come into public ownership. This in itself is no light responsibility.

We need also more forest research. Forestry in this country after all is relatively new, and we have not as yet, either through experience or research, built a broad and sound enough scientific foundation for it. This is, in my opinion, one of the important reasons progress in the practice of forestry has lagged.

It is my deep conviction that we must put all our lands in order and have them contribute all they can, consistent with their permanent maintenance, to the welfare of all the people; that the forest lands of this country can once again make their contribution toward this total objective.—*From statement by Secretary Wallace before Joint Congressional Committee on Forestry.*

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Ten Foresters Honored

Ten senior members of the Society of American Foresters were elected by letter ballot January 18 to the grade of Fellow, the highest professional distinction that can be accorded a technically trained forester in America.

Fellows of the Society of American Foresters are chosen because of outstanding achievement as leaders in responsible directive or distinctive individual work in forestry.

The new Fellows are: Carlos G. Bates, principal silviculturist, Lake States Forest Experiment Station, Saint Paul, Minnesota; Fred W. Besley, state forester of Maryland; Ovid Butler, editor of AMERICAN FORESTS and executive secretary of The American Forestry Association, Washington, D. C.; Arthur F. Fischer, advisor on natural resources to the Philippine Commonwealth, Manila; William L. Hall, consulting forester, Hot Springs, Arkansas; Clifton D. Howe, dean of the Faculty of Forestry, University of Toronto, Canada; Elers Koch, assistant regional forester, United States Forest Service, Missoula, Montana; Samuel J. Record, dean of the School of Forestry, Yale University, New Haven, Connecticut; Henry Schmitz, head of the Division of Forestry, University of Minnesota, Saint Paul; and Hugo Winkenwerder, dean of the School of Forestry, University of Washington, Seattle.

The Society of American Foresters with headquarters in Washington, D. C., has a membership of 4,600 technically trained foresters, of whom twenty-nine are now Fellows.

Open Spaces and Speedsters

(*Continued from page* 122)

can pile on, and is away. "Two more tackles like that," shouts Don in my ear, "and that old boy won't carry the ball any farther."

But I noticed that Mike wore a nice red gash down his side where Mr. Coyote's tusks had left their parting souvenir.

Along came a dry wash into which the gray-haired speedster disappeared and the hounds after him. I slammed on the brakes at the very brink, almost catapulting us through the windshield.

"Nice driving," growls Don, nursing an egg-sized bump on his forehead where he had connected with the windshield. But even as he spoke he was out looking for a way down into the draw. Finding it, he climbed back in and we zigzagged our course to the bottom.

None too soon was our arrival, for we caught sight of Minnie's white hide streaking along the sandy soil, apparently hot on the trail. Luckily the sand was packed hard so we hit it up, and prayed that this was no box-canyon. Then we saw the coursers, the coyote still in the lead. Suddenly he sprang onto a red dirt shelf and scrambled upwards, followed by the three hounds and a slither of falling dirt.

"Over there!" shouts Don, gesturing towards a sloping side of the draw, a possible way out.

I sent the bus at the incline. For a despairing moment the wheels spun, but the new tires did the trick, and up we went. We arrived on top just in time to see Minnie assert her prerogative by racing ahead of Mike and reach with her lean jaws for a hold on Gray Boy. But he ducked around a handy clump of weeds. Meanwhile, Mike and Maud went by twenty feet before they could set their four-legged brakes, and the coyote gained fifty yards by his canny trick. Says Don softly in my ear: "It must be the Chinese in him."

But now the dogs were around again and back in the running. Evidently infuriated by their quarry's clever trick their pace was terrific. And so was that of this big gray coyote.

"Come on, Al," encourages Don, "you're only doing forty. Let's have a little speed."

"All we need now is a nice, snow-covered rut," I start to say, when Don interrupts:

"Mike's on him!" he shouts. "They've got him down!" We pull alongside the battlers and I switched off the ignition.

For a minute while we watched, hair flew, and the click of ivory against ivory sounded as the tusks of the battlers met. This coyote was an old warrior, and his fangs did plenty of damage while the battle lasted. There were no yowls from these combatants. They took it silently and came back for more. But enough was plenty, as the thrill of coyote coursing is the battle of wits and the chase, not the kill. So Don walked over to the gyrating mass of the hairy pin-wheel, struck the coyote on the skull, and put an end to the battle.

Thus it was, as the saying goes, another murderer "bit the dust",—a killer of small game. With his passing, baby antelope would have a better chance to grow and game birds to flourish.

We lingered a few minutes while we removed the pelt from Gray Boy, and the dogs gulped down great gobs of melting snow into their parched mouths and licked their wounds. Then we loaded them back into the crate, and went on our way once more to see how they run.

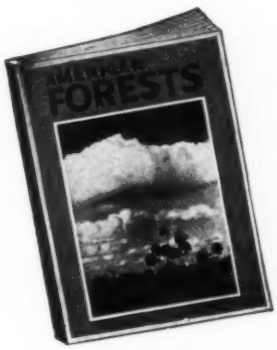
TRAIL RIDERS

Eight expeditions are being scheduled this year for the Trail Riders of the Wilderness. Turn to page 130 for the list of trips.

YOUR INVITATION TO MEMBERSHIP

IN THE

AMERICAN FORESTRY ASSOCIATION



AMERICAN FORESTS IS SENT MONTHLY TO MEMBERS

ASSOCIATION OBJECTIVES

Adequate Forest Fire Protection by federal, state and other agencies.

Reforestation of Denuded Lands valuable for timber, wildlife, protection of streams.

Protection of Fish and Game and other wildlife under sound game laws.

Prevention of Soil Erosion

Preservation of Wilderness for Recreation

Establishment of State and National Forests and Parks

Development of Forestry Practices by the forest industries.

Education of the Public, especially children, in respect to conservation of America's natural resources.

Forest Recreation as a growing need for the development of the nation.

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Your Shade Trees

(*Continued from page* 137)

Trees with interesting bark: White Birch, American Beech, Sycamore, Yellowwood.

Plants for covering the ground: Vinca minor, Pachysandra, Honeysuckle, English Ivy.

Vines to hold banks: Rosa Wichuraiana, Hall's Honeysuckle, Matrimony Vine, Forsythia Suspensa.

For seashore planting: Willows, Silverleaf Poplar, Red Cedar, Mulberry, Red Oak, Hydrangeas.

Trees and shrubs for deep shade: Hemlock, Beech, Viburnums, Dogwoods, Privets.

From these it should be possible to choose varieties to meet your immediate need, or certainly to be guided in the right direction. Hardiness of planting stock and adaptability to environment are first necessities to success. A good general rule is to use trees or planting stock of varieties known to thrive locally and under similar conditions to your own.

With proper attention and care your trees will thrive and repay in their beauty and service through long years of living whatever you may have invested in them. At the door of the lovely old home of the late Dr. Henry Van Dyke—beloved author and poet—in Princeton, New Jersey, stands a venerable elm,—a wonderful tree of great beauty. It was this tree which really inspired his poem "Salute to the Trees" and to which he addressed the lines so widely and constantly quoted:

"Their roots are the nurses of rivers in birth,
Their leaves are alive with the breath of the earth;
They shelter the dwellings of man . . .
And now, when the morning gilds the boughs
Of the vaulted elm at the door of my house,
I open the window and make salute:
'God bless thy branches and feed thy root!
Thou hast lived before, live after me,
Thou ancient, friendly, faithful tree.'"

ANSWER
To Puzzle Picture No. 3

This is an Indian Trail Tree. When it was a small sapling Indians bent it over to mark a new trail. Coming in contact with the soil, its top took root with the result that the tree continued to grow with two sets of roots. As a consequence, two distinct trunks developed. In Indian country these trail trees are not unusual. This one is growing at Highland Park, Illinois. Photograph is by the U. S. Forest Service.

WHO'S WHO
Among the Authors in This Issue

HENRY A. WALLACE (*Forest Land in Our National Economy*) has been the Secretary of Agriculture since 1933. Editor of *Iowa Homestead and Wallace's Farmer* before his appointment, Mr. Wallace has also written a number of books.

L. F. Livingston

L. F. LIVINGSTON (*Wood Futures*) is a Director of The American Forestry Association. Since 1929 he has been manager of the Agricultural Extension Division of E. I. du Pont de Nemours and Company.

JOHN D. GUTHRIE (*Finland's Forest Soldiers*) is in close touch with foreign as well as domestic forestry affairs, and was a delegate to the First and Second International Forestry Congresses. Among the memberships which he holds in several professional societies is one in the Finnish Forestry Society. Major Guthrie has been with the Forest Service since 1906. He is now General Inspector, in charge of CCC information of the Service.

JOHN C. GIFFORD (*The Cajeput*), internationally known forester, scholar and scientist, has devoted more than a half century to the constructive work of conservation of forest resources. His studies in Florida and the West Indies for the past thirty years, and his vision, determination and endurance have made him the foremost authority in America on tropical forestry. One of the oldest graduate foresters in this country, Dr. Gifford was once editor of *The Forester*, now AMERICAN FORESTS.

John C. Gifford

HENRY S. GRAVES (*The Control of Stream Pollution*) served for ten years as Chief Forester of the United States. Mr. Graves, a Director of The American Forestry Association, was formerly Dean of the Yale Forest School.

FRANK J. HALLAUER (*New Farm Homes for the Building*) was for ten years with the Forest Products Laboratory on research in utilization. He is now located at the Washington office of the federal Forest Service.

LEON V. ALMIRALL (*Open Spaces and Speedsters*) calls coursing coyotes one of his particular "weaknesses" for diversion. Mr. Almirall, born an easterner, prefers to live in Colorado.

COVER—*At Timberline.* Photograph by John Kabel, made out of Cordova, Alaska.

Forest Service Halts Wind Swept Grass Fire

Indian Fire Pumps Used with Great Effectiveness to Extinguish Flames

What might have been a disastrous forest fire was stopped late yesterday afternoon by members of the Forest Service who went into action with Smith Indian Fire Pumps and had the blaze under control in less than ten minutes.

It is thought that an unextinguished cigarette tossed from a car by a passing motorist was the cause of the grass and brush fire which was whipped into serious proportions by a high wind. With the grass like tinder from the long drouth, the flames quickly spread to where they endangered nearby buildings.

Indian Fire Pumps are portable 5 gallon extinguishers which carry on the back or by hand. Easy working of pump back and forth throws powerful, 50 ft. stream of clear water which goes right to the base of the fire. One tankful of water extinguishes 500 ft. of grass fire. Indians are standard equipment of the Forest Service. Officials say they are fire fighters of the greatest value.

Man and Pump Stop Forest Fire

A member of the Forest Service is shown above as he used his Indian Fire Pump to extinguish a spreading grass fire. Powerful, pressure stream of clear water kills fire and gets into every nook and cranny. 5 gal. tank carries by hand or on the back.

NEW RUST PROOF TANK

Air conditioned tank is curved in shape to fit back snugly. No moisture reaches the back. Portable by hand or on the back.

INDIAN FIRE PUMPS

make good news when there is a fire fighting job to be done. Used and endorsed by the Federal and State Foresters, INDIANS are unequalled for putting out grass, forest, building and spot fires *Quickly and Completely*. Just keep 5 gal. tank filled with clear water. Easy pumping throws a fire killing, high pressure stream to base of flame. One tankful extinguishes 500 ft. of grass fire.

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catawbiense. One and two stems.
carolina. Bushier. Some flowers.
Kalmia. One and two stems.
Azaleas. All one and two stems.

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Catesbaei	$4.50	$7.50	$25.00
Kalmia (Laurel)			
Latifolia	4.00	7.00	25.00
Rhododendrons			
Carolina	5.00	8.00	30.00
Catawbiense	5.00	8.00	30.00
Maximum	3.75	7.00	20.00

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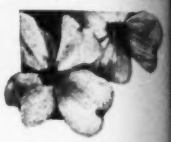

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